# **Besta' Power** Compressed Air and Electric Supply System Program C40





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### **Overview**

#### **Product Description**

The BestaPower C40 energy supply system provides mobile consumers with a continuous supply of compressed air, electrical energy, and data through an energy guiding chain or festoon system. The modular assembly and flexible attachment options allow for simple and quick installation.

#### The main features of BestaPower C40:

- Reliable guiding provided by robust trolleys
- Simple installation using variable brackets
- Compact installation space due to small cross section

#### System Overview



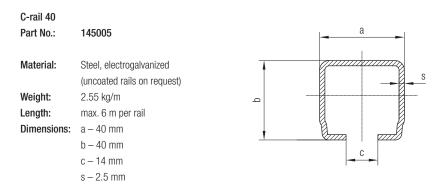
BestaPower C40 with Energy Guiding Chain



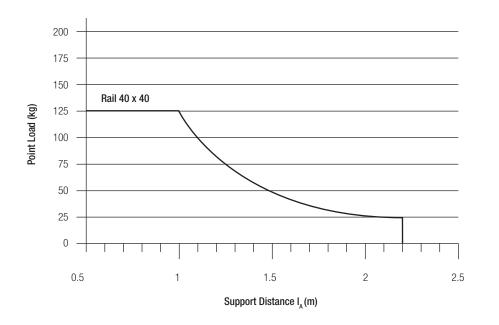
BestaPower C40 with Festoon System

#### **General Information**

The classic Conductix-Wampfler C-rail series is electrogalvanized and available in lengths up to six meters. They can be combined into rail lines of any length. Energy can be supplied either through a festoon system or by attaching a cable chain.

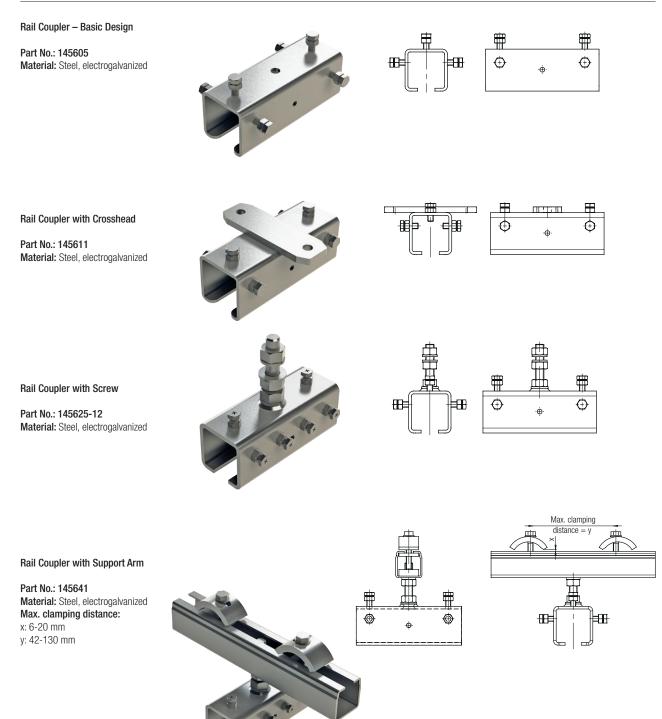


Load Diagram



Max. point load: 125 kg Max. suspension distance: 2.2 m

#### **Rail Coupler**



**Rail Support Bracket** 

#### Rail Support Bracket with Crosshead

Part No.: 145511 Material: Steel, electrogalvanized

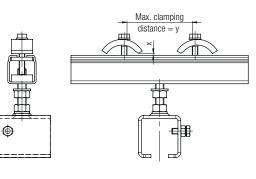
Rail Support Bracket with Screw

Part No.: 145525-12 Material: Steel, electrogalvanized

Rail Support Bracket with Support Arm

Part No.: 145541 Material: Steel, electrogalvanized Max. clamping distance: x: 6-20 mm y: 42-130 mm





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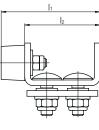
#### **End Stops**

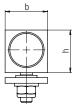
#### Part No.: 145500

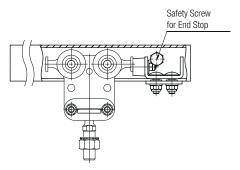
#### Note:

End Stops must be secured by a safety screw crosswise to the rail. Safety screw is included in the scope of delivery.









#### Suspensions

In addition to the various mounting options with Rail Support Brackets directly to the ceiling, suspensions often need to be used, e.g on saw-tooth roofs, or under structural steel work.

#### **Single-point Suspensions**

Determining the length of threaded rods (mm):

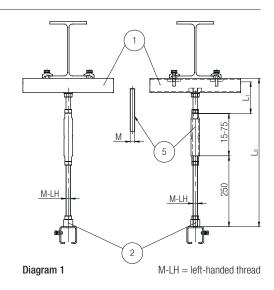
Diagram 1 and 2: (for vertical suspension only)

Diagram 2 and 3: (for inclined suspension only)

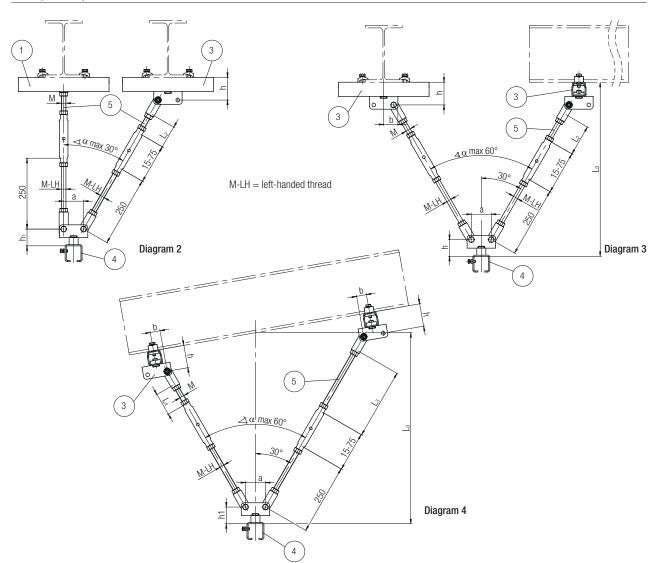
 $L_2 = \frac{L_0}{\cos \alpha} - 450$ 

 $L_1 = L_0 - 320$ 

**Diagram 4:**  $L_3$  and  $L_4$  have to be determined graphically and calculative, depending on the corresponding incline of the ceiling.



#### V-shaped Suspensions



#### Suspensions

The bottom parts (Positions 2 or 4) can be rotated to adjust the direction of the rails.

**Example Order:** Required suspension according to Diagram 2,  $L_0 = 1.5$  m for C-Rail 145005, angle  $\alpha = 20^{\circ}$ , Rail Support Bracket version.

Part No.: Pos. (1) Suspension, upper part – 145211

Pos. 2 Suspension, bottom part - 145221-A

Pos. 3 Suspension, upper part – 145212

Pos. (4) Suspension, bottom part - 145222-A

Pos. (5) Threaded rod DIN 975-M12 - 145210-3

	Technical Data 40 x 40		
	Description	Position No.	Part No.
	Upper part	1	145211
Single-point suspension (vertical)	Bottom part*	2	145221-A/B
	Threaded rod 3 m	5	145210-3
	Upper part	3	145212
V-shaped suspension (inclined)	Bottom part*	(4)	145222- A/B
	Threaded rod 3 m	5	145210-3
Dimensions (mm)		h	90
		h <sub>1</sub>	60
	1	M	M12
	;	a	60
		b	30

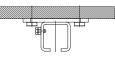
Standard delivery length of threaded rods is 3 m. Cut to desired length before installation.

\* Bottom parts (2) and (4) are available in the following versions: a) Rail Support Bracket = A, b) Rail Coupler = B

Note: It is vital to state Version A or B when ordering! These bottom parts are delivered with turnbuckles.

#### **Rail Suspension on Concrete Ceilings**

When mounted directly on the ceiling, the possibility to adjust the level of the rail track is limited (stiffener plates necessary). Use of Rail Couplers is restricted.





Using Brackets allows for versatile mounting and allignment options.

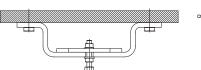
#### Part No. 145241

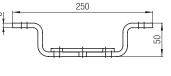
(Rail Support Brackets are not included in the scope of delivery)

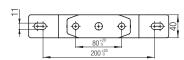
#### Note:

When mounting the Rail Suspensions directly below the ceiling, Suspensions have to be shimmed to allow for clamping of the Rail Suspension on the back of the rail. We therefore recommend using our Bracket.

We recommend verification of the load capacity of the ceilings or structural steel work by a structural engineer.







#### **General Information**

There are two different energy supply systems available for the C40 system. These free workplaces from cables and hoses and guide energy to mobile consumers without restriction. Both systems are suitable for the supply of electric and pneumatic energy as well as data transmission.

With the festoon system, the cables and/or hoses are attached to special cable trolleys, which are in turn guided along the rails. This permits the cables/hoses to be guided safely along rails overhead. With the energy guiding chain, the cables and hoses are arranged compactly and safely within a chain. The "reeling out and in" of the chain allows energy to be guided wherever it is needed.

The two systems differ in various characteristics:

	Festoon System	Energy Guiding Chain
Advantages / Features		
Pneumatic Energy Supply	Ø	Ø
Electrical Energy Supply	Ø	Ø
No Restoring Forces		Ø
No Cable Loops		Ø
Full use of the Workspace		Ø
Simple Service and Conversion	Ø	Ø
Pressure Loss Factor *	3	1
Installation Time Factor *	3	2

\* 1 = very low 2 = average 3 = considerable

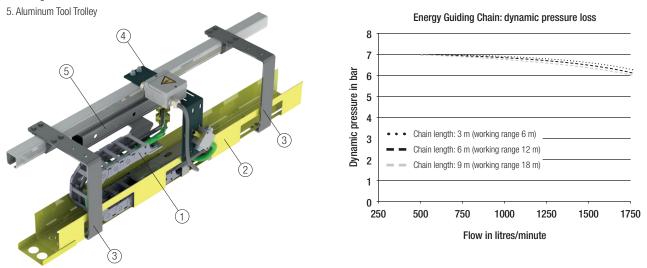
#### **Energy Guiding Chain**

The energy guiding chain permits continuous energy supply throughout the workspace. In addition to compressed air hoses, electric and data lines can be safely guided to the consumer. The use of energy guiding chains frees the area around the worker's head from distracting cable slack.

The energy guiding chain, fed at the centre of the cycle, allows for more efficient use of compressed air than with normal festoon or spiral hose systems, as shorter hoses can be used.

#### The energy guiding chain consists of the following components:

- 1. Chain Kit with Supply Lines
- 2. Guiding Channel
- 3. Clamping Unit
- 4. Guiding Plate for Power Feed



The graph above shows the pressure loss of an energy guiding chain using a 1/2" compressed air hose at an operating pressure of 7 bar. The pressure loss from the traverse trolley to the consumer or the downstream systems must be added to this in each case.

#### Energy Guiding Chain – Chain Kit with Supply Lines

In general, a chain kit includes the energy guiding chain with supply lines and the necessary elements for its attachment. Depending on the supply line, the energy guiding chain allows a later elongation. Standard chain kits can be custom-configured with respect to length and desired supply lines.

#### Part No.: 047735#

Length:

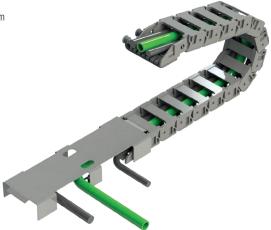
Chain is adjusted to fit the cycle. Maximum cycle length: 18 m Possible supply lines: Compressed air hose with 1/2" inner diameter Electric cable: 3 x 2.5 mm<sup>2</sup> or 5 x 2.5 mm<sup>2</sup> Data lines, cables with UL approval and other supply line options upon request

#### Technical features of chains

Outside measurements, chain:	79 x 35 mm
Inside measurements, chain:	62 x 26 mm
Minimum bending radius:	70 mm
Material:	PA

#### Possible components:

- Chain Actuator
- Traversing plate
- 1/2" hose and/or electric cable
- · Hose/cable connection length is configurable and can be cut to fit during installation
- · For electric cable: terminal boxes with mounting material
- Accessories for attaching the energy guiding chain



#### Energy Guiding Chain – Guiding Channel

The guiding channels carry and guide the chain kit. The number of guiding channels needed is based on the length of the assembly line. The channels are connected endwise using a connection plate.

#### Part No.:

3-meter length: 047750-03,0 2-meter length: 047750-02,0 1-meter length: 047750-01,0

Material: powder coated steel Color: RAL 1012, lemon yellow Other colors available on request.

For fast-moving chains, a guide plate can optionally be attached to the bracket as a rise limiter (not shown).



#### Energy Guiding Chain – Clamping Units

Clamping units are used to fix the guiding channel onto the c-rail.

The track support brackets contain already all accessories needed to fix the guiding channel. They can also be connected to an existing system. The distance between two clamaping units should not be greater than 1.5 m to make sure that the system runs smoothly.

#### Part No.: 047760-40-0235-7016

Material:Steel, epoxy-coatedColor:RAL 7016, anthracite grey

Delivery includes mounting material



#### Energy Guiding Chain – Guiding Plate for Power Feed

In addition to the guiding channel, a feeding bracket is also available. This is mounted on the rail next to the feed point of the energy guiding chain. Hoses and cables can be attached to the feeding bracket to guide them to the feeding point.

#### Part No.: 047765-40-0235-7016

Material:Steel, epoxy-coatedColor:RAL 7016, anthracite grey



#### Energy Guiding Chain – Aluminum Tool Trolley

The tool trolleys are directly connected via the chain actuator of the chain kit to the energy guiding chain. This direct connection ensures a permanent use of energy within the whole system.

The trolley has a standard C-rail slot on the bottom side to which individual accessories such as maintenance units, balancers and more can be attached.

The trolley has a standard length of 400 mm and comes with smooth running Lauramit rollers. Other lengths and steel rollers are available on request.



#### Energy Guiding Chain – Suspension Trolleys

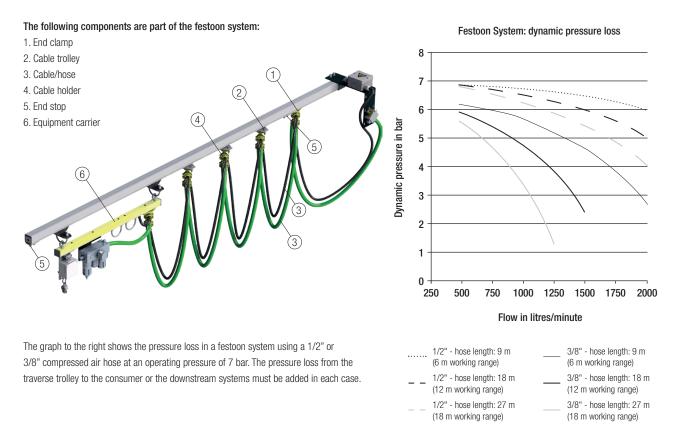
Alternatively to the tool trolleys are suspension trolleys connectable to the energy guiding chain.

These are preferably used as parts of a tool transporter (see page 17) or in case of special applications where higher load capacities are needed. Please contact us in case of such requests.



#### Festoon System

For short to medium cycle lengths and low compressed air usage, a festoon system is another possible alternative.



#### Festoon System – Components and Part Numbers

End Clamp Part No.: 0 Material: S

024312 Steel, plastic



Cable Trolley with Ball Joint			
Part No.:	024313-80		
Material: Galvanized steel, plastic			
	Ball bearings, galvanized with ZZ seal		
Load capacity:	20 kg		



Cable Trolley with Bracket and Buffers			
Part No.:	024320-125		
Material:	Galvanized steel		
	Ball bearings, galvanized with ZZ seal		
Load capacity:	32 kg		



#### Festoon System – Components and Part Numbers

#### Cable holder for attachment to ball joint

Part No.:	<b>020131-16</b> (for cable diameter $10 - 17$ mm)
Part No.:	020131-25 (for cable diameter 17 - 25 mm)
Material:	Cable holder: plastic
	Connection elements: galvanized steel

#### Cable holder for attachment to clips

 Part No.:
 020133-16 (for cable diameter 10 - 17 mm)

 Part No.:
 020133-25 (for cable diameter 17 - 25 mm)

 Material:
 Cable holder: plastic

 Connection elements: galvanized steel



For end clamp (048926) and cable trolley (048951) as well as for the attachment of a second cable/hose under cable holder 020131-16...25 and 020133-16...25

For cable trolleys with hoop 048951-001. To be used for compressed air hoses > 3/8" or for multiple supply lines.

Other hoses upon request

Electric Cables	Round Cable TG 3G2.5	Round Cable TG 5G2.5	
Part No.:	131210-R3G2,5#	131210-R5G2,5#	
Outside diameter:	10.9 – 14 mm	13.3 – 17 mm	
Max. voltage:	430/750 V	430/750 V	
Strand count/conductor cross-section:	3 x 2.5 mm <sup>2</sup>	5 x 2.5 mm <sup>2</sup>	
Sheathing material:	Rubber	Rubber	
Protective conductor:	Yes	Yes	Other cables upon request
Compressed Air Hoses	Hose DN10 (7/8")	Hose DN13 (1/2")	
Part No.:	040421-2	040421-3	
Part No. of hose clip:	040443-4	040443-6	
Part No. of hose clamp:	040435-20	040435-20	
Nominal pressure:	20 bar	20 bar	
Medium:	Compressed air	Compressed air	
Inner diameter:	10 mm	13 mm	
Outside diameter:	15 mm	19 mm	

#### Festoon System – Layout Tips

If the festoon system requires special adjustment, please contact us directly. You can also find additional instructions in our catalogue 0240 "Festoon Systems for C-rails". The following rules of thumb apply for simple layout and quantity calculations:

PUR

Number of end stops: 2 per cycle

Number of end clamps: 1 per cycle

Number of cable trolleys: Cycle length / 1.6

• Number of cable holders: Number of end clamps + number of cable trolleys (for two hoses/cables or a cable and a hose, this number must be doubled)

• Length of hose/cable: Cycle length x 1,25 + connection length

PUR

For this layout, a cable trolley depot of about 10% of the cycle length is also needed to buffer the trolleys. The cable slack is approx. 0.75 m.

#### Example:

Material:

4 cycles, each with a cycle length of 15 metres, should support one pneumatic and one electric energy supply each.

The connection lengths from the festoon system to the feed are each 2 m.

Number of end stops: $4 \times 2 \text{ per cycle} = 8 \text{ units}$ Number of end clamps: $4 \times 1 \text{ per cycle} = 4 \text{ units}$ Number of cable trolleys: $4 \times 15 / 1.6 = 36 \text{ units}$ Number of cable holders: $(4 + 36) \times 2 = 80 \text{ units}$ Number/length of hoses: $4 \times (15 \times 1,25 + 2) = 4 \text{ hoses of } 20,75 \text{ m each}$ Number/length of cables: $4 \times (15 \times 1,25 + 2) = 4 \text{ cables of } 20,75 \text{ m each}$ 

#### Festoon System – Equipment Carrier

Part No.:
Material:
Main roller:
Load capacity [kg]:
Compressed air connection:
Length [mm]:
Length [mm]: Traverse color:

047254 Steel, coated Steel 50 1 x G3/8" 500 RAL 1012, lemon yellow End Clamp with Cable Holder, 1 x Bracket



Part No.:	047
Material:	Stee
Main roller:	Stee
Load capacity [kg]:	50
Compressed air connection:	2 x
Length [mm]:	500
Traverse color:	RAL
Components:	End

Part No.:

Material:

7255 el, coated el G3/8" 0 L 1012, lemon yellow Clamp with Cable Holder, 2 x Bracket, 2 x Reduction G3/8" to G1/4"



047281 Steel, coated Steel Main roller: Load Capacity [kg]: 50 Compressed Air Connection: 1 x G3/8" Electrical Connection: 1 x 230 V 10/16 A Current load: Length [mm]: 630 Traverse colour: RAL 1012, lemon yellow Components: End Clamp with 2 x Cable Holder, 2 x Bracket,

Reduction G3/8" to G1/4", Power Socket 230 V 10/16 A

Part No.: Material: Main roller: Load Capacity [kg]: Compressed Air Connection: Electrical Connection: Current load: Length [mm]: Traverse colour: Components:	2 x 230 V 10/16 A 630 RAL 1012, lemon yellow End Clamp with Cable Holder, 2 x Bracket,	
	Power Socket 2 x 230 V 10/16 A	

### **Tool Transporter**

#### **General Information**

Optimize your workstations with a customised tool transporter. This makes your tools, hardware and power easily accessible and close at hand without cable clutter and trip hazards Your workstations become more ergonomic, safer and more economical.

We individually make your tool transporter for you and your application. We start with a base frame of aluminum groove profile, which you can customize to your individual working height using the option of height and width adjustment, and to the particular application.

You can put together your perfect tool transporter from a wide range of components. By virtue of the groove profile, these can be flexibly and quickly attached to the base frame. This also makes it easy to install additional components at a later date. Electrical and/or compressed-air connections can be integrated as desired. The tool transporter can be rotated at will, so you can access your tools from any side. The tool transporter is supplied fully assembled with the requested components. The carrying capacity of the tool transporter including its dead weight is 125 kg.















0.5 m ... 1 m

1 m, 1.1 m, 1.2 m, ... 3 m

### Accessories

#### **Braking Skids**

The braking skids are inserted between 2 runners in the C rail, thus preventing any unwanted movement in both directions. The braking skids do not completely brake the bars, but can be moved.

Part No.: 024784 Braking force: 1-2 [kN] Material: Plastic Connection elements: Galvanised Steel Weight: 0.1 [kg]



#### Reels, Retractors, and Balancers

Whether for hoses or cables, as classical reels or high-precision positioning aids for tools – reels and retractors from Conductix-Wampfler take the load off your shoulders. You can find the complete product range in catalogue 0402-0002-E "Reels/Retractors/Balancers", or online at www.conductix.com



### Your Applications – our Solutions

The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on Conductix-Wampfler for hands-on engineering support together with the optimum solution to safely meet your needs.



Cable and Hose Reels Motor driven and spring driven reels by Conductix-Wampfler provide energy, data and media over a variety of distances, in all directions, fast and safe.



Festoon Systems Conductix-Wampfler cable trolleys can be used in virtually every industrial application. They are reliable, robust and available in an enormous variety of dimensions and designs.



Conductor Rails Available as enclosed or multiple unipole systems, Conductix-Wampfler conductor rails reliably move people and material.



Inductive Power Transfer IPT® The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear. Flexible installation when used with Automated Guided Vehicles.



Energy Guiding Chains Covering a wide range, energy guiding chains are the ideal solution for transferring energy, data, air and fluids for many industrial applications.



Radio Remote Controls Safety remote control solutions customized to meet our customer needs with modern ergonomic design.



Reels, Retractors and Balancers Available for hoses and cables, as classical reels or high-precision positioning aids for tools, we offer a complete range of reels and spring balancers.



Mobile Control Systems Mobile control solutions for your plant – wether straightforward or intricate. Control and communication systems from LJU have been tried and tested in the automotive industry for decades.



#### Jib Booms

Complete with tool transporters, reels or an entire media supply system – safety and flexibility are key to the completion of difficult tasks.



Non-insulated Conductor Rails Robust, non-insulated aluminum conductor rails with stainless steel cap provide the ideal basis for power supply of people movers and transit networks.



Slip Ring Assemblies Whenever things are really "moving in circles", the proven slip ring assemblies by Conductix-Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!



ProfiDAT This data transfer system is a compact slotted waveguide and furthermore can be used as Grounding rail (PE) as well as positioning rail at the same time.

# www.conductix.com

#### **Conductix-Wampfler**

has just one critical mission: To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

To contact your nearest sales office, please refer to: www.conductix.contact



