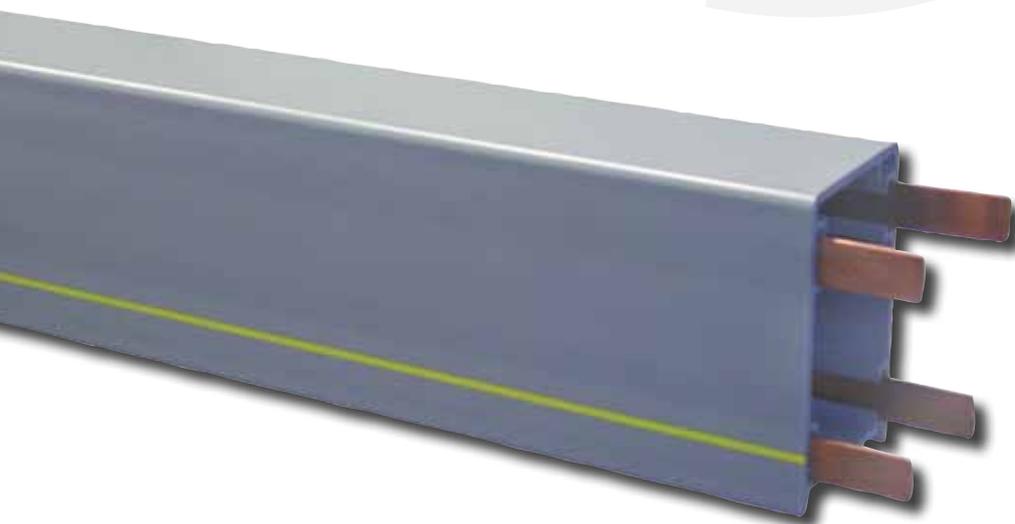


4-Ductor[®]

Insulated conductor bar



AKAPP 4-Ductor® current supply system

compact, reliable and safe!

AKAPP 4-Ductor is a compact, reliable and safe current supply system for cranes, hoists, monorail systems, conveyor belts etc.

The basic design of AKAPP 4-Ductor is a channel housing, in which four slots are prepared to accommodate copper conductors. The flat conductors are installed **without the need for joints**.

Thanks to the design of the 4-Ductor and its continuous conductors, the system offers unique features as listed below.

Which advantages does 4-Ductor® offer you?

• **Excellent price/quality ratio.** The concept of the continuous conductors and the use of only high quality components result in a trouble free feeding system against an agreeable price.

• **Continuous copper conductors.** The flat copper conductors can be pulled from rolls into the previously installed PVC housing in long continuous lengths, without any connections in the conductor.

• **High current capacity.** Copper conductors of various capacities can be pulled into the channels in the housing. Standard conductor capacities are 35, 50, 80, 125 and 160A.

• **Simple installation.** Due to the light weight of the PVC housing, copper conductors without connections and the design of accessory components, system installation is a quick and easy operation.

• **Virtually maintenancefree.** The PVC housing needs no maintenance and as previously mentioned continuous copper conductors ensure minimal brush wear. Thus minimising the presence of carbon deposits. Inspection periods can be scheduled in line with the schedule of the apparatus to be fed (i.e. a crane).

• **Volt drop absolute minimum and constant** due to continuous copper conductors, thus avoiding problems associated with added resistance at joints and increased volt drop characteristics when joints loosen or corrode.

• **Compact design.** By virtue of design, the 4-Ductor system utilises an absolute minimum of space.

• **High mechanical strength.** The PVC housing has a combination of high flexural yield, impact and tensile strength and is complemented by the design of associated components.

• **Maximum power transmission.** The brushes are positively located in the PVC housing and contact with the flat copper conductors is maintained by spring pressure. This guarantees a positive contact and excellent power transmission.

• **Exceptionally long carbon brush life** is achieved due to the absence of conductor joints and connections which ensures trouble free operation.

• **Safety to personnel.** The high level of volume resistivity of the PVC housing ensures absolute safety to personnel.

• **No expansion problems.** Due to the clearance that exists between the conductors and their location and the clearance between the PVC housing and sliding hangers, expansion due to changes in ambient temperature is accommodated without affecting the operation of the system. This also applies to extra long installations where standard components eliminate expansion problems often experienced with alternative systems.

For some applications, it is necessary to use the **AKAPP Multiconductor® system** (please refer to separate brochure). Typical examples are as follows:

- 5 to 7 conductors are to be installed in one housing;
- the system requires protection using flexible sealing strips;
- the installation requires the use of transfer guides or isolation sections;
- the travel speed is in excess of 250 m/min.;
- a combination of the above.

Please note that, due to continuous innovations, technical specifications and performances listed in this catalogue, are subject to change without notice.

PVC housing

Type RN4

with 4 conductor slots to accommodate 4 copper conductors.

Colour: grey (appr. RAL 7000)

Temperature range -30°C to +60°C.

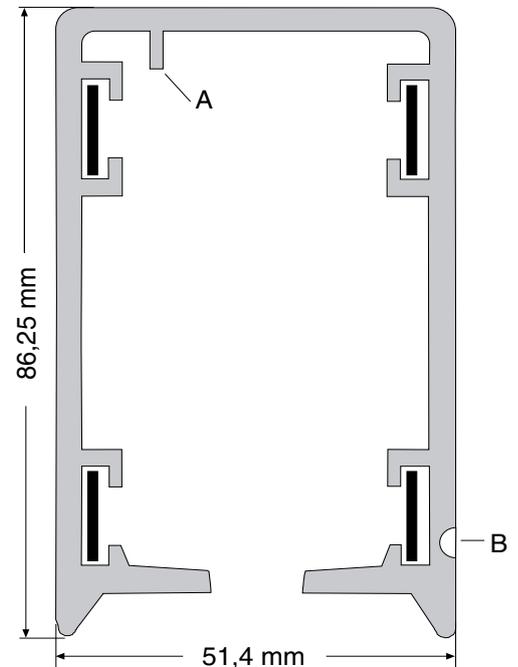
The anti-reverse rib (A) in the housing ensures that the collector trolley can only be installed in one way and prevents cross phasing. A continuous yellow stripe (B) on one side of the housing ensures correct fitting of the system.

The PVC with a high impact strength is self-extinguishing.

Technical data of the housings

| Material data | |
|---|----------------------------|
| Unplasticized Hard-PVC with approximate values: | |
| Notch shock strength | 5-10kJ/m ² |
| E-modulus | 2500-3000N/mm ² |
| Softening point (Vicat) | 81-83°C |
| Linear expansion | 70.10 ⁻⁶ |
| Electrical data | |
| Volume resistivity with 100V | >4.10 ¹⁵ Ω/cm |
| Dielectric strength with 50 Hz | >30 kV/mm |

Length of housing is standard 4 m; Special lengths are available.



Copper conductors for housing RN4

Each 4-Ductor installation is supplied with continuous flat copper conductors to suit the system length.

Copper conductors type CU35, CU50, CU80, CU125 and CU160 for current capacities 35, 50, 80, 125 and 160A (duty cycle 80%) Material electrolytic copper.

Maximum lengths of continuous conductor strip that can be pulled into the conductor housing:

Cu35 and Cu50: 300m; Cu80: 250m; Cu125: 200m; Cu160: 150m



Attachments for 4-Ductor housing

Sliding hanger

Type BN7-Z : galvanised;

Type BN7-L : galvanised + epoxy coating.

Center distance of hanger supports:

2000 mm : possible for installations with conductors
Cu35, Cu50 and Cu80;

1333 mm : all installations.

Fixed point clamp

Type VMN7-Z : galvanised;

Type VMN7-L : galvanised + epoxy coating.

The system should be secured to the support construction adjacent to the electric feed point via a self clamping fixed point and then from this position free expansion is allowed to take place. When required, 2 provided self drilling screws can make the connection extra secure.

Joint clamp

Type VN7-Z : galvanised;

Type VN7-L : galvanised + epoxy coating.

The lengths of housing are connected by means of standard joint clamps. The clamps have special fixations whilst fitting the clamp halves. When required, 2 provided self drilling screws can make the connection extra secure.

Insulating tape

Type T50. 50 mm width, roll of 10 m. This adhesive tape is used to ensure a permanent shroud around the housing joints, prior to fitting the joint clamps.

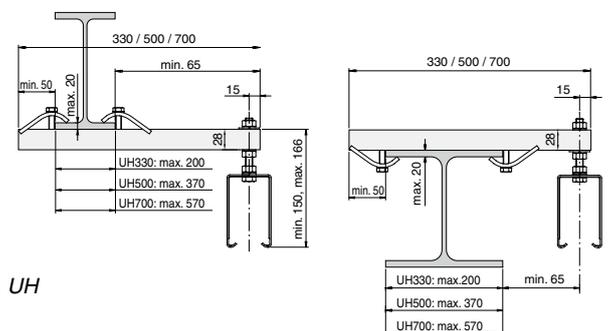
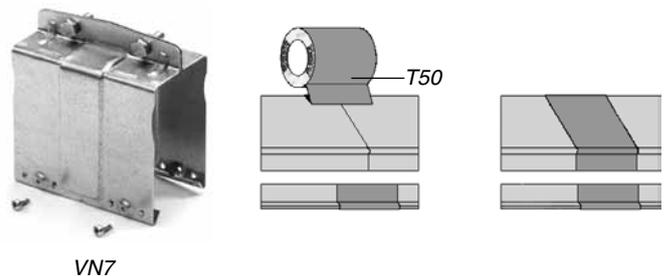
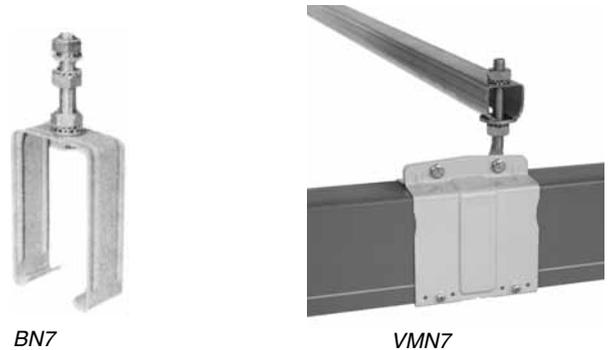
Support bracket, galvanised C-profile

Type UH330, length 330 mm

Type UH500, length 500 mm

Type UH700, length 700 mm

These brackets have clamps attached to sliding nut assemblies thus facilitating a flexible mounting arrangement capable of accommodating various sizes of RSJ (INP) beams, allowing simple horizontal adjustment.



End feed boxes

End feed box type EB40

This box is supplied with connecting screws for connecting the supply cable cores (up to 4 cores) to the copper conductors. Feeding in via a cable gland M40 for cables $\varnothing 10\text{-}\varnothing 28$ mm, e.g. 4 x 25 mm².



End feed box type EBS32

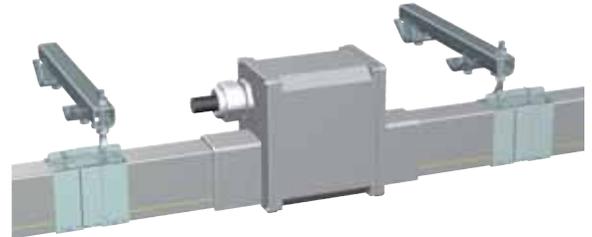
A small end feed for connecting small cables up to $\varnothing 21$ mm. Feeding in via a cable gland M32.



Line feed boxes

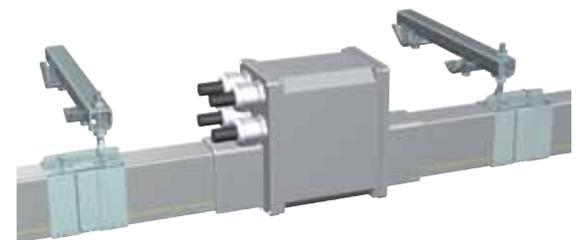
Line feed box type LB40

Feeding in via a cable gland M40 for cables $\varnothing 10\text{-}\varnothing 28$ mm, e.g. 4 x 25 mm².



Line feed box type LB32-4

Performance equal to LB40, however supplied with 4 cable glands M32 for single core cables $\varnothing 10\text{-}\varnothing 21$ mm (25 mm² and above). The feed connection comprises a transition box. AKAPP can inform you about the available types.



Feed cables for line feed box LB32-4

Single core cables, standard length 1,5 m. Provided with 2 cable lugs (1 fitted at cable end and 1 separately)

Type OK25 (1x25 mm²), $\varnothing 14,9$ mm; 135A max. (100% D.C.)

Type OK35 (1x35 mm²), $\varnothing 15,3$ mm; 169A max. (100% D.C.)

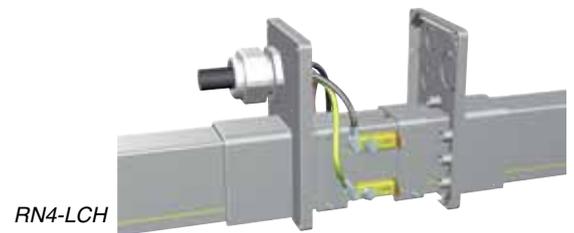
Line feed housings

Connecting possibilities for feed cables when line feed is used.

Line feed clamp holder type RN4-LCH

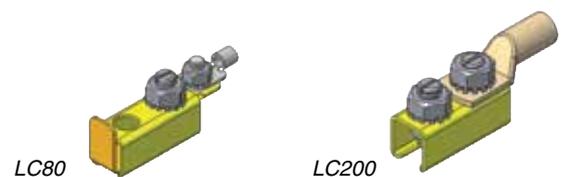
This clamp holder can easily be slid over the 2 housing ends. Supplied with 4 notches in which the - to be ordered separately - feed clamps LC80 and LC200 fit (see description below).

For connections with continuous copper.



Feed clamp type LC80, with bolt M6, for copper conductors Cu35, Cu50 and Cu80;

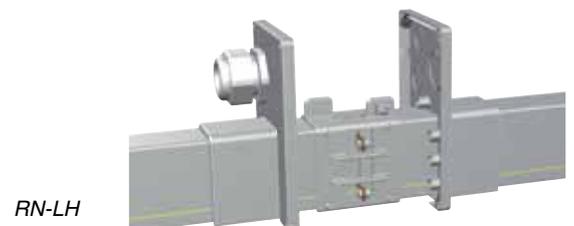
Feed clamp type LC200, with bolt M8, for copper conductors Cu125 and Cu160.



Line feed clamp holder type RN-LH

The RN-LH is composed of 2 halves that "click" together around the rail housing. The 7 slots leave the copper joints free.

Includes bolts/nuts M6 for connections of conductors.



End cap type EN4

Length 300 mm. For closing off the open ends of a 4-Ductor system.

Fitted to the housing by means of a joint clamp (ordered separately).



Collector trolleys

The current is fed from the 4-Ductor to static or mobile equipment via the collector trolley. The actual connection to the flat conductors is via spring loaded carbon brushes which are manufactured from a special bronze/carbon alloy having a high wear factor.

The collector trolley is pulled along the 4-Ductor installation by the apparatus/machine being fed, on which the towing arm is mounted.

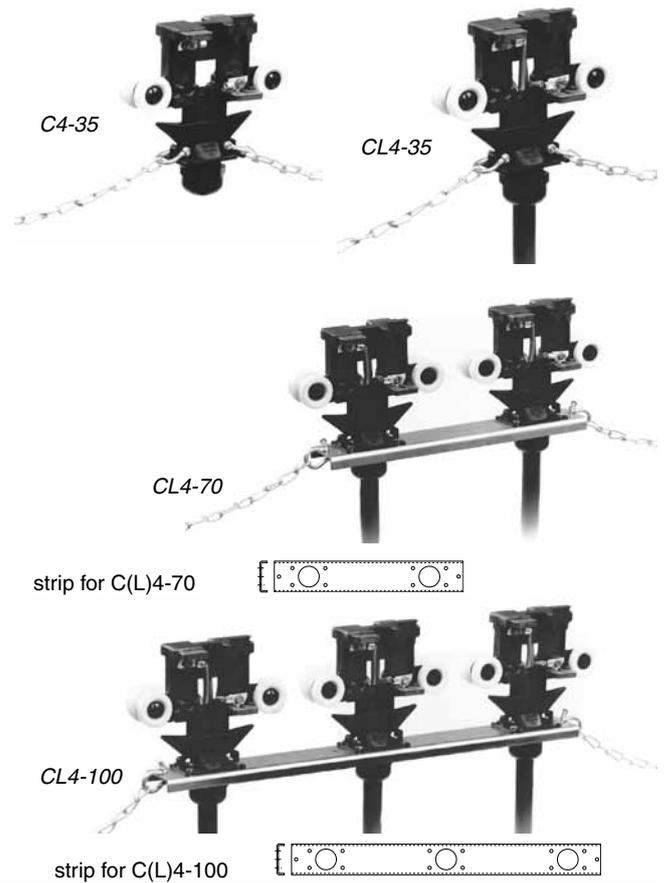
The standard collector trolleys are suitable for traverse-speeds up to 60 m/min.

Standard collector trolleys

Collector trolleys are available for 4 conductors with current carrying capacities of 35, 70 and 100A; duty cycle 60%. The 70A trolleys and 100A trolleys are formed by mounting 2 resp. 3 separate trolleys 35A on a metal strip (see the figures opposite). Existing trolleys can be easily transformed.

All collector trolleys can be delivered with or without 1 m tail (type "C4-..", resp. "CL4-..").

It is recommended to use a transition box when connecting the trolley with the apparatus to be fed (see figures below). This box (order separately) can be mounted close by on the apparatus or machine.

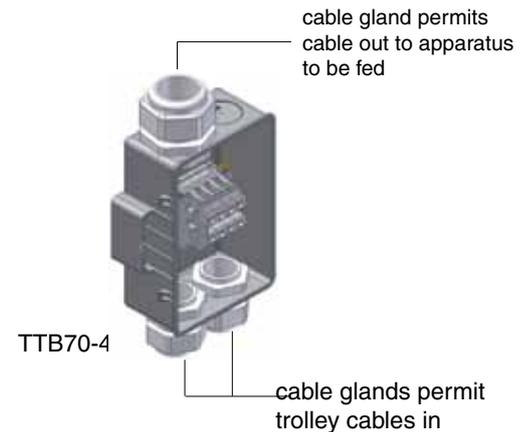


Transition boxes for collector trolleys

This unit facilitates the connection of the flexible cable from the collector trolley with the fixed wiring from the apparatus/machine being fed. Using the included attachments, the transition box can be mounted easily on the (AKAPP) towing arm or close by on the apparatus/ machine.

Types of transition boxes:

| type | for trolley | inlet | outlet |
|----------|-------------|-------|--------|
| TTB35-4 | C(L)4-35 | 1xM32 | 1xM32 |
| TTB70-4 | C(L)4-70 | 2xM32 | 1xM40 |
| TTB100-4 | C(L)4-100 | 3xM32 | 1xM40 |



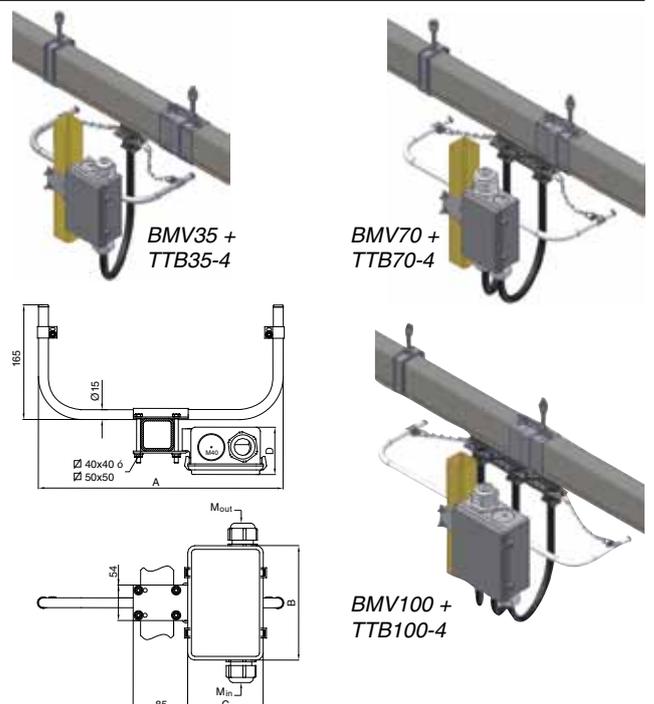
Trolley towing arm

Types BMV35, BMV70 and BMV100, for collector trolleys resp. 35A, 70A and 100A.

A towing arm is attached to the moving machinery and connected to the collector trolley via chains. The arrangement is such that when pulling in either direction one of the collector towing chains is taut, the other remaining slack. In this way lateral movements of the crane, hoist, etc. are not transmitted to the trolley. This tolerance provides **ultimate security of service!**

Attention: The towing connector on the arm should be installed 10 mm lower than the towing connection on the trolley in the highest position and at 30 mm lower than the towing connection on the trolley in the lowest position and should be aligned directly below the housing opening in the vertical plane.

| | BMV35 + TTB35 | BMV70+ TTB70 | BMV100 + TTB100 |
|--------|---------------|--------------|-----------------|
| A | 370 | 505 | 640 |
| B | 175 | 175 | 195 |
| C | 115 | 115 | 160 |
| D | 70 | 70 | 80 |
| inlet | 1xM32 | 2xM32 | 3xM32 |
| outlet | 1xM32 | 1xM40 | 1xM40 |



Other AKAPP conductor bar systems:

always the perfect solution!

The AKAPP 4-Ductor is an ultimate reliable and efficient conductor system, which is world-wide, successfully used in a large number of installations.

This brochure details a brief outline of the unique characteristics.

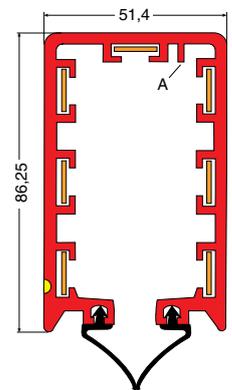
However, AKAPP-STEMMANN supplies many conductor systems, a fitting solution for the most diverse situations.

AKAPP-STEMMANN aims to provide all information you need: our professional team is available for free and non committal advice.

Further information required? Just a single telephone call, fax or e-mail will suffice. See the back cover for details or check www.akapp.com to find your nearest distributor.

Multiconductor

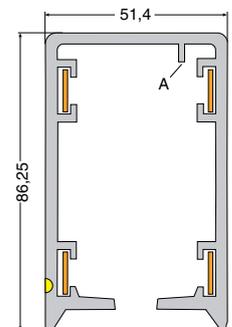
A compact and multi purpose conductor system. The **uninterrupted** conductors ensure a perfect transmission of **current feed-** as well as **control-** and **data signals**. Current capacities up to 320A. A flexible rubber sealing prevents penetration of dust or liquids. Well suited for extremely long tracks and high travel speeds. Used world-wide for cranes, traverse cars, (automated) warehouses, elevators, textile production, sluices, trains etc., even under in extremely dusty, humid or even corrosive environments!



4-Ductor

If four conductors suffice, no flexible rubber sealing is required, but you do want to make use of all the advantages of the uninterrupted conductors, opt for the most ideal conductor system for your organisation, opt for the AKAPP 4-Ductor!

Ideal, for it has: no expansion problems, a constant and low voltage loss, a choice of 5 current intensities (see above) and virtually no maintenance. In all, an uninterrupted current supply for a variety of movable and/or mobile equipment at a **very profitable cost-benefit analysis**.

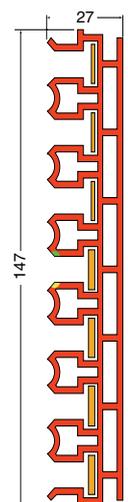


Pro-Ductor

The most compact, varied conductor system for automated warehouses and many other applications! Suitable for up to 4 (type PR4), 7 (type PR7) or 10 (type PR10) copper conductors. The p.v.c. housing PR7 has a height of only 147 mm and is 27 mm wide and can be applied only centimetres above floor level.

The **uninterrupted** conductors ensure a perfect transmission of both **feed, control and data signals**. Choices in current capacity from 50A, 80A, 125A, 160A up to 200A.

Suitable for **extreme long travelling lengths** and **high travel speeds**.



AKAPP - STEMMANN: Flexible with energy!



AKAPP-STEMMANN is a market leader with our made to order conductor bar systems. We offer you the best possible solution for almost any application in whatever the circumstances. We welcome your inquiries!



Our cable reels prove their worth daily in numerous situations, whether it concerns cable reels on harbour cranes or cable reels for earthing at ports of transshipment. Naturally, we can also supply the correct high-flexible cable!



Our festoon systems offer the most flexible solutions for transporting flat or round cables and hoses. A wide variety of profiles and components guarantees reliable installations, adapted to the environment.

More informations on our products can be found in our brochures. We are happy to send you the catalogues on request. You can also visit our internet site, www.akapp.com, serving you 24 hours a day!