

Your key

to perfect wire transport.



Products

Transport devices
Drum hoods and accessories
Couplings and connectors to wire feeders
Conduits
Pneumatic feed assist
Pulley, Wire end control
Ceramic surface protection

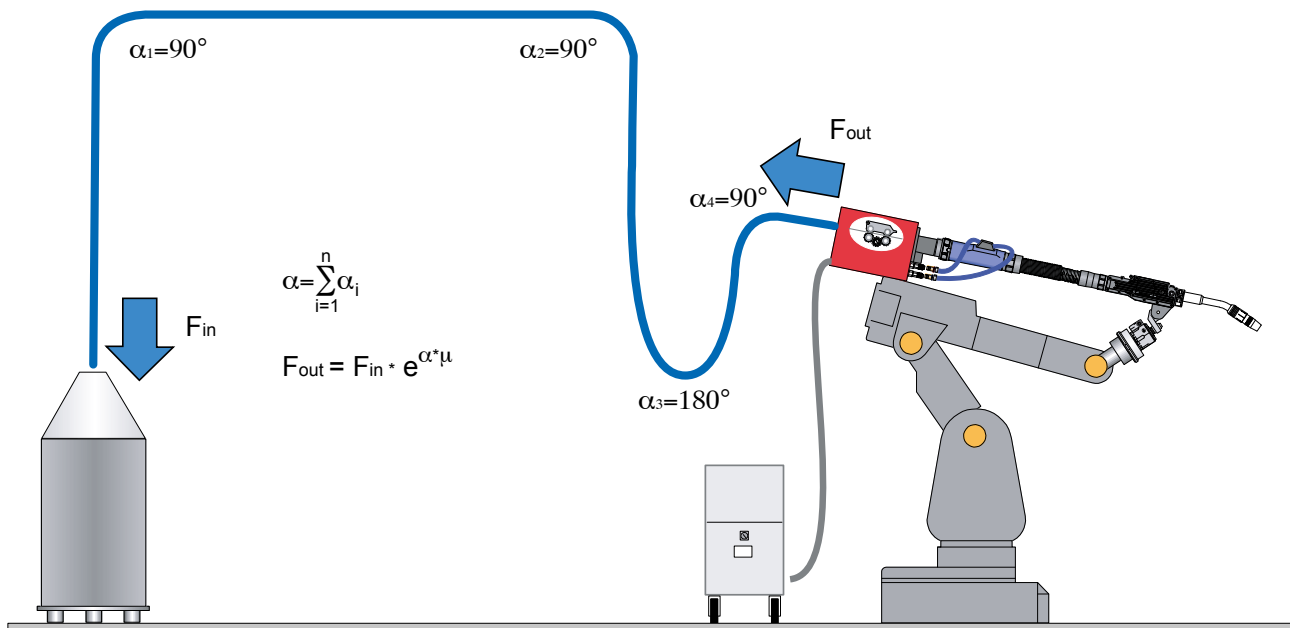
MIGAL.CO

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Wire transport

Proper design of wire transport systems



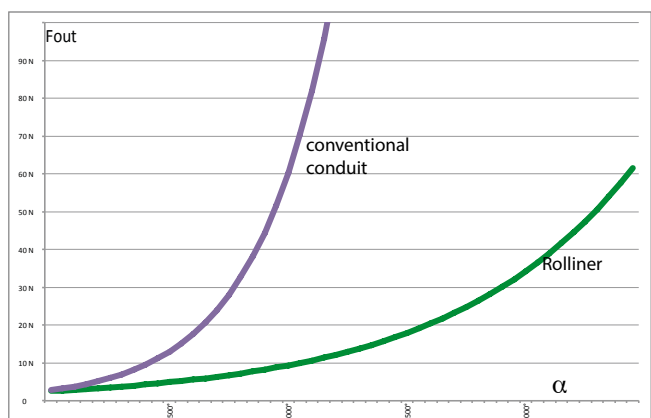
Schematic presentation of a robotic welding system with bulk wire supply

With the application of bulk wire systems (drums, large spools) instead of standard coils (7 kg in aluminum, 15 kg in steel) the use of conduits is necessary. At the same time the constancy of the wire feed speed is a crucial parameter in arc- or beamwelding. The movement of the electrode wire in the wire guide hose is inhibited by friction and it can very easily lead to situations in which the wire speed required can no longer be maintained.

Thus, the correct design of the entire wire guide system is crucial. Own research and practical experience from MIGAL.CO has shown that the formula from Euler-Eytelwein is sufficiently accurate to design wire transport systems for a stable long-term operation. The following informations are necessary:

- Required force in Newton to pull the wire out of the bulk pack
- Pulling force of the wire feeder in Newton which can be safely maintained during continuous operation
- Friction coefficient of conduit
- Sum of the radii of the conduit in degrees

The products of MIGAL.CO are uniquely matched to each other, thereby guaranteeing optimum wire transport and reliable welding processes in large scale production.



Exponential curves of two different conduits

For latest details regarding the content of this page see www.migal.co

Wire transport

Friction coefficient of MIGAL.CO conduits

Conduit	Type of friction	Friction coefficient
Rolliner 3G	Rolling friction	0.08
Rolliner XL2	Rolling friction	0.08
Toughliner	Sliding friction	0.20 *
Softliner	Sliding friction	0.20

* for steel wires only. Toughliner cannot transport aluminum wires!

Extraction force from MIGAL.CO drums

Type of drum	Extraction force [N]
Eco-drum aluminum with decoiling aid ASH 81	1.5 N (ML4043 1.6 mm)
Jumbo-drum with decoiling aid TOU400/580	1.0 N (ML5087 1.2 mm)
Eco-drum CrNi with decoiling ring	0.6 N (ML 18.8 Mn 1.2 mm)

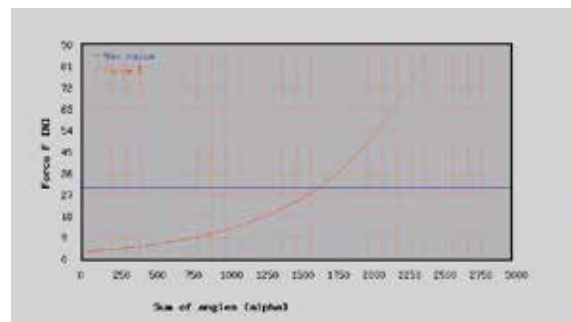
Calculation of transport forces for the proper design of wire transport systems

With the following calculation form the application of the Euler-Eytelwein formula for designing a wire transport system is possible.

The following entries are to be made:

- Drag force in Newton - how much is for example the force required to pull the wire out of the drum (see table)
- Angle α in degrees - Sum of the bending angles with which the conduit is installed
- Friction coefficient μ (see table)

It calculates the force with which the wire feed motor has to pull. You can enter a maximum value (e. g. 30 N). The values are also displayed graphically in the diagram.

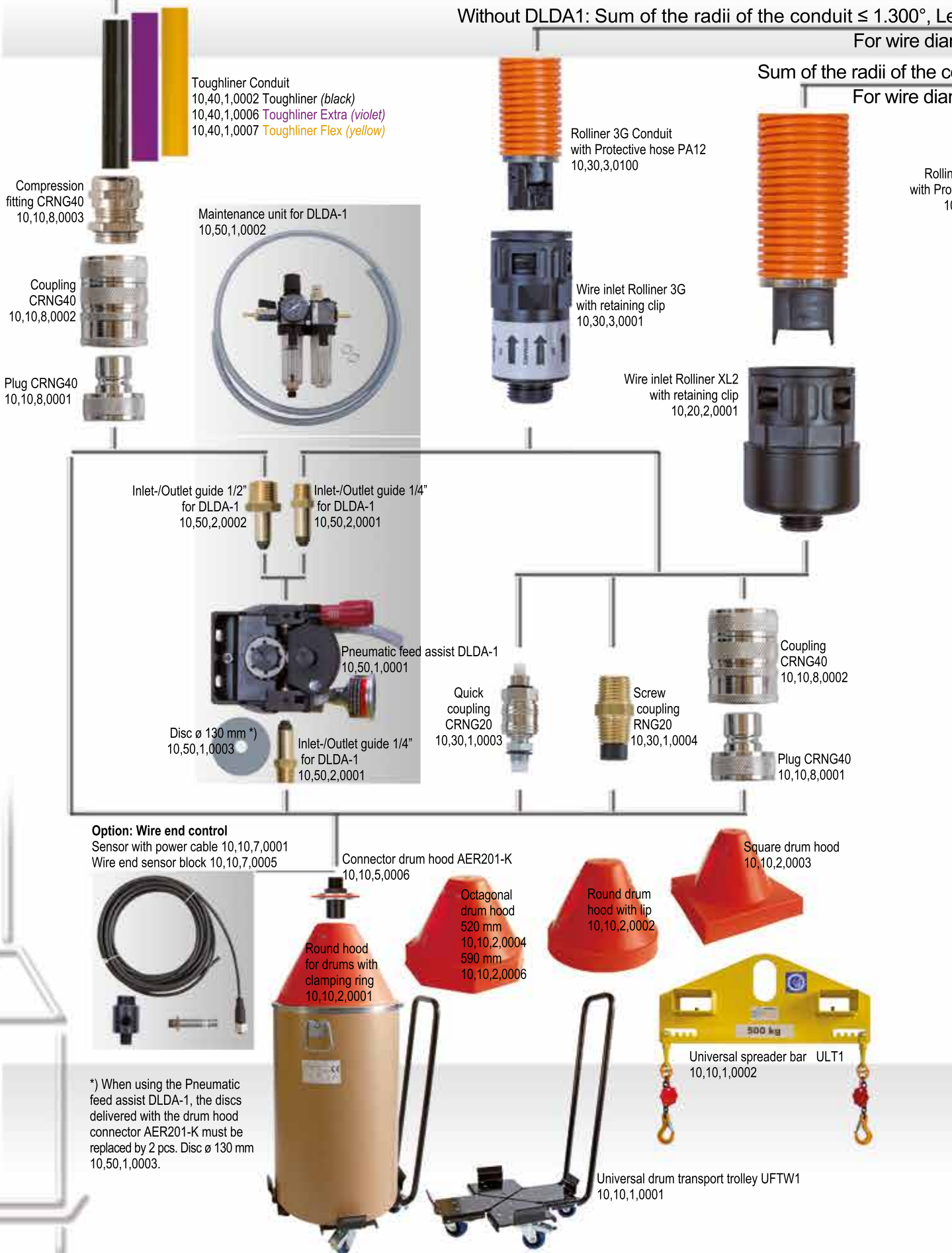


Drag force G [N]	Sum of angles α [°]	Friction coefficient μ	Maximum force F_{max} [N]	Force F [N]
<input type="text" value="3"/>	<input type="text" value="500"/>	<input type="text" value="0.08"/>	<input type="text" value="30"/>	<input type="text" value="6.03"/>
<input type="button" value="Calculate"/>				

An interactive form for the calculation of transport forces is available at www.migal.co

Wire transport for un- and low-alloy steel wires

For wire diameters up to 2.4 mm. Without Pneumatic feed assist DLDA1: Sum of the radii of the conduit



of the conduit $\leq 360^\circ$, Length ≤ 5 m • With DLDA1: Sum of the radii $\leq 1.800^\circ$, Length ≤ 50 m

length ≤ 25 m • With DLDA1: Sum of the radii $\leq 2.500^\circ$, Length ≤ 75 m

meters up to 1.6 mm.

Conduit $\leq 1.300^\circ$, Length ≤ 25 m

meters up to 4 mm.

er XL2 Conduit
ective hose PA12
0,20,2,0100



Rolliner 3G Conduit
with Protective hose
10,30,3,0100



Toughliner Conduit
10,40,1,0002 Toughliner (black)
10,40,1,0006 Toughliner Extra (violet)
10,40,1,0007 Toughliner Flex (yellow)



Compression
fitting CRNG40
10,10,8,0003

Plug CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002



Wire outlet Rolliner XL2
with retaining clip
10,20,2,0002



Wire outlet Rolliner 3G
with retaining clip
10,30,3,0002



Adapter 1/2" - 1/4"
with internal thread
10,10,8,0006



Connector
CLOOS
19,20,1,0009



Universal connector
for wire feeders
ASRPR with brass insert
10,20,1,0013



Screw
coupling
RNG20
10,30,1,0004

Connector
SKS-PF5
10,20,1,0011

Plug
CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002



Adapter 1/2" - M20
10,20,1,0014



Wire transport for high-alloy steel wires and non-ferrous alloys

For wire diameters up to 2.4 mm. Without Pneumatic feed assist DLDA1: Sum of the radii of the

Without DLDA1: Sum of the radii of the conduit $\leq 1.300^\circ$, Le

For wire diam

Sum of the radii of the c

For wire diam

Softliner Conduit
10,40,1,0001

Compression fitting CRNG40
10,10,8,0003

Coupling CRNG40
10,10,8,0002

Plug CRNG40
10,10,8,0001

Maintenance unit for DLDA-1
10,50,1,0002

Rolliner 3G Conduit with Protective hose PA12
10,30,3,0100

Wire inlet Rolliner 3G with retaining clip
10,30,3,0001

Wire inlet Rolliner XL2 with retaining clip
10,20,2,0001

Inlet-/Outlet guide 1/2" for DLDA-1
10,50,2,0002

Inlet-/Outlet guide 1/4" for DLDA-1
10,50,2,0001

Disc \varnothing 130 mm *)
10,50,1,0003

Inlet-/Outlet guide 1/4" for DLDA-1
10,50,2,0001

Pneumatic feed assist DLDA-1
10,50,1,0001

Quick coupling CRNG20
10,30,1,0003

Screw coupling RNG20
10,30,1,0004

Coupling CRNG40
10,10,8,0002

Plug CRNG40
10,10,8,0001

Option: Wire end control

Sensor with power cable 10,10,7,0001
Wire end sensor block 10,10,7,0005

Connector drum hood AER201
10,10,5,0005

Square drum hood
10,10,2,0003

Round hood for drums with clamping ring
10,10,2,0001

Octagonal drum hood 520 mm
10,10,2,0004
590 mm
10,10,2,0006

Round drum hood with lip
10,10,2,0002

*) When using the Pneumatic feed assist DLDA-1, the discs delivered with the drum hood connector AER201 must be replaced by 2 pcs. Disc \varnothing 130 mm 10,50,1,0003.

Universal spreader bar ULT1
10,10,1,0002

Universal drum transport trolley UFTW1
10,10,1,0001

of the conduit $\leq 360^\circ$, Length ≤ 5 m • With DLDA1: Sum of the radii $\leq 1.800^\circ$, Length ≤ 50 m

length ≤ 25 m • With DLDA1: Sum of the radii $\leq 2.500^\circ$, Length ≤ 75 m
meters up to 1.6 mm.

Conduit $\leq 1.300^\circ$, Length ≤ 25 m
meters up to 4 mm.

er XL2 Conduit
ective hose PA12
0,20,2,0100



Rolliner 3G Conduit
with Protective hose
10,30,3,0100



Softliner Conduit
10,40,1,0001

Compression
fitting CRNG40
10,10,8,0003

Plug CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002



Wire outlet Rolliner XL2
with retaining clip
10,20,2,0002



Wire outlet Rolliner 3G
with retaining clip
10,30,3,0002



Adapter 1/2" - 1/4"
with internal thread
10,10,8,0006



Connector
CLOOS
19,20,1,0009



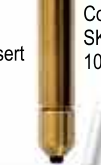
Universal connector
for wire feeders
ASRPR with plastic insert
10,20,1,0012



Screw
coupling
RNG20
10,30,1,0004

Plug
CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002



Connector
SKS-PF5
10,20,1,0011

Adapter 1/2" - M20
10,20,1,0014



Wire transport for aluminium alloys with MIGAL.CO Eco- or Jumbo-

For wire diameters up to 2.4 mm. Without Pneumatic feed assist DLDA1: Sum of the radii of the conduit ≤ 1.300°, Le

Without DLDA1: Sum of the radii of the conduit ≤ 1.300°, Le

For wire diam

Sum of the radii of the co

For wire diam

Softliner Conduit
10,40,1,0001

Compression fitting CRNG40
10,10,8,0003

Coupling CRNG40
10,10,8,0002

Plug CRNG40
10,10,8,0001

Maintenance unit for DLDA-1
10,50,1,0002



Rolliner 3G Conduit with Protective hose PA12
10,30,3,0100

Wire inlet Rolliner 3G with retaining clip
10,30,3,0001

Wire inlet Rolliner XL2 with retaining clip
10,20,2,0001

Rollin
with Pro
1

Inlet-/Outlet guide 1/2" for DLDA-1
10,50,2,0002

Inlet-/Outlet guide 1/4" for DLDA-1
10,50,2,0001

Insulation plate for DLDA-1
10,50,1,0004

Pneumatic feed assist DLDA-1
10,50,1,0001

Disc ø 130 mm *)
10,50,1,0003

Inlet-/Outlet guide 1/4" for DLDA-1
10,50,2,0001

Quick coupling CRNG20
10,30,1,0003

Screw coupling RNG20
10,30,1,0004

Coupling CRNG40
10,10,8,0002

Plug CRNG40
10,10,8,0001

Rolliner NG 10,30,1,0100 in required length with 2 pcs. connector ENG20S 10,30,1,0016 and 2 pcs. strain relief RES20 10,30,1,0017

Option: Wire end control
Sensor with power cable 10,10,7,0001
Wire end sensor block 10,10,7,0005



Pulley ULR-2
10,10,6,0001

Round hood for drums with clamping ring
10,10,2,0001

Square drum hood
10,10,2,0003

Decoiling aid ASH 81
10,10,3,0003

Decoiling aid TOU400/580
10,10,4,0001

Beech wooden balls 40 mm
10,10,3,0002

Universal spreader bar ULT1
10,10,1,0002

Universal drum transport trolley UFTW1
10,10,1,0001

*) When using the Pneumatic feed assist DLDA-1, the discs delivered with the decoiling aid ASH 81 must be replaced by 2 pcs. Disc ø 130 mm 10,50,1,0003.



of the conduit $\leq 360^\circ$, Length ≤ 5 m • With DLDA1: Sum of the radii $\leq 1.800^\circ$, Length ≤ 50 m

length ≤ 25 m • With DLDA1: Sum of the radii $\leq 2.500^\circ$, Length ≤ 75 m

meters up to 1.6 mm.

Conduit $\leq 1.300^\circ$, Length ≤ 25 m

meters up to 4 mm.

er XL2 Conduit
ective hose PA12
0,20,2,0100

Rolliner 3G Conduit
with Protective hose PA12
10,30,3,0100

Softliner Conduit
10,40,1,0001

Compression
fitting CRNG40
10,10,8,0003

Plug CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002

Wire outlet Rolliner XL2
with retaining clip
10,20,2,0002

Wire outlet Rolliner 3G
with retaining clip
10,30,3,0002

Adapter 1/2" - 1/4"
with internal thread
10,10,8,0006



Connector
CLOOS
19,20,1,0009

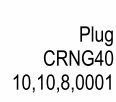


Universal connector
for wire feeders
ASRPR with plastic insert
10,20,1,0012



Screw
coupling
RNG20
10,30,1,0004

Connector
SKS-PF5
10,20,1,0011



Plug
CRNG40
10,10,8,0001

Coupling
CRNG40
10,10,8,0002

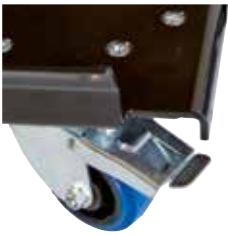
Adapter 1/2" - M20
10,20,1,0014



Transport devices

Universal drum transport trolley UFTW 1

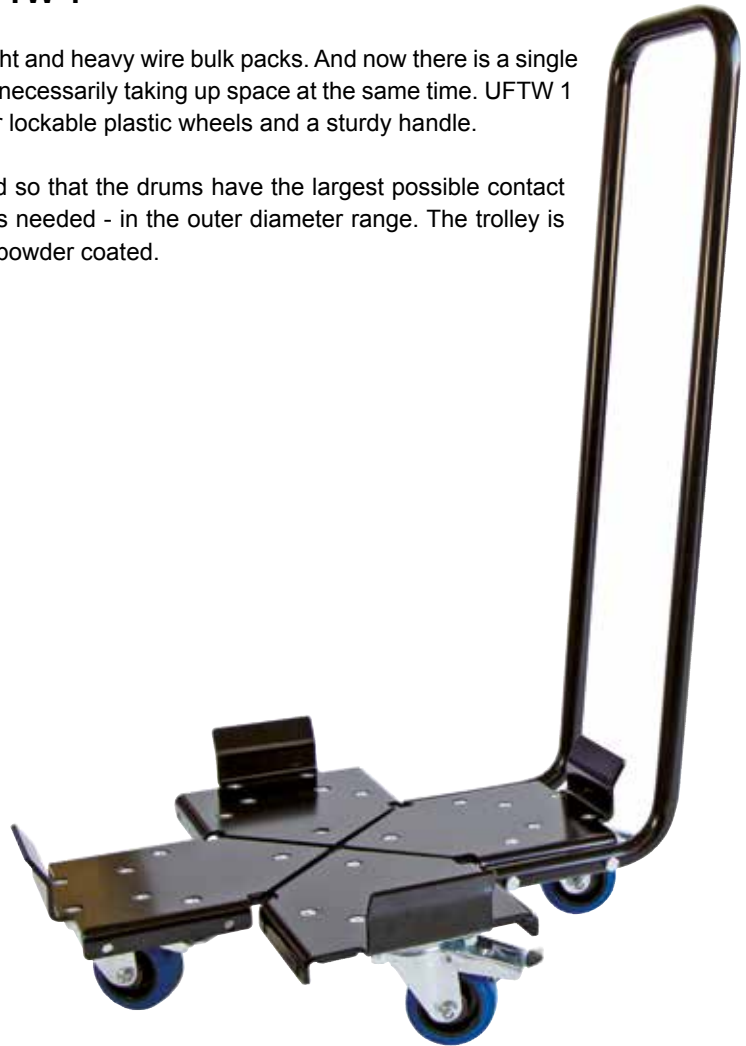
There are round, octagonal, square, small, large, light and heavy wire bulk packs. And now there is a single trolley that can deal with all these barrels without unnecessarily taking up space at the same time. UFTW 1 is adjustable by 40 mm steps in five levels, has four lockable plastic wheels and a sturdy handle.



The UFTW 1 is constructed so that the drums have the largest possible contact surface precisely where it is needed - in the outer diameter range. The trolley is made from 5 mm steel and powder coated.



An empty UFTW 1 can be pushed easily by the handle.



Technical Data

Maximum load	600 kg
L x B x H over all	850 x 740 x 915 mm
Product weight	18.4 kg
Roll diameter	80 mm

Overview table

Item number	Designation
10,10,1,0001	Universal drum transport trolley UFTW 1

The design sheet for the FTW1 is available at www.migal.co

Transport devices



UFTW1 in position 540 mm



UFTW1 in position 700 mm



UFTW1 with Eco-drum



UFTW1 with Jumbo-drum

For latest details regarding the content of this page see www.migal.co

Drum hoods

Drum hoods for round, octagonal and square drums

Drum hoods serve to attach the conduit and protect the drum contents from contamination. The hoods of MIGAL.CO are made of LDPE and fully recyclable. The two opposite slits are covered with a PVC window.



RND-520S
Round drum hood with lip for drums without clamping ring diameter 500 - 520 mm.



RND-520
Round hood for drums with clamping ring diameter 520 mm.



OCT-520, OCT-590
Octagonal hood for drums with 520 mm (590 mm) incircle diameter.



QUA-600
Square cap for drums with 600 mm edge length.

For latest details regarding the content of this page see www.migal.co

Drum hoods

Overview table

Item number	Designation	Dimensions	Weight
10,10,2,0001	Round drum hood for drums with clamping ring RND-520	520 mm outside diameter	1.7 kg
10,10,2,0002	Round drum hood with lip RND-520S	for drums with 500 - 520 mm outside diameter	1.7 kg
10,10,2,0003	Square drum hood QUA-600	for drums with 600 mm edge length	2.7 kg
10,10,2,0004	Octagonal drum hood OCT-520	520 mm incircle diameter	2.4 kg
10,10,2,0006	Octagonal drum hood OCT-590	590 mm incircle diameter	2.5 kg

Reference table

Manufacturer	Type	Round drum hood	Round drum hood with lip	Square drum hood	Octagonal drum hood
MIG WELD	Eco-drum aluminum- and copper alloys	x			
MIG WELD	Eco-drum CrNi		x		
MIG WELD	Jumbo-drum			x	

A reference table for drums of other manufacturers is available at www.migal.co

For latest details regarding the content of this page see www.migal.co

Decoiling aids

MIGAL.CO - decoiling aids - decades of experience for wire without knots

The wire extraction from drums and coils is fundamentally different. While coils rotate through the extraction and the wire is drawn tangentially, drums stand still and the wire is usually taken vertically upward in the axial direction.

This leads to a twist of the wire (torsion). Depending on the mechanical properties of the wire, it may cause a sudden entanglement preventing further withdrawal of the wire electrode. Such tangles are also often referred to as knots. Especially aluminum wires of alloys of the 5000 group are particularly vulnerable, but basically, this can also occur in other steel and non-ferrous alloys.

Decoiling aid ASH 81 for Eco-drums



Our ECO-drums are mainly used for aluminum alloys of the 4000 series, as well as for copper alloys. Here, our decoiling finger built-into the drum hood has been proven in conjunction with 70 wooden balls (40 mm diameter) thousands of times.

Using this decoiling finger no further connector for the conduit is necessary. The decoiling aid provides a 1/4" internal thread and a 1/2" external thread.



*Decoiling aid ASH 81
Rotating decoiling finger for integration into drum hood.*

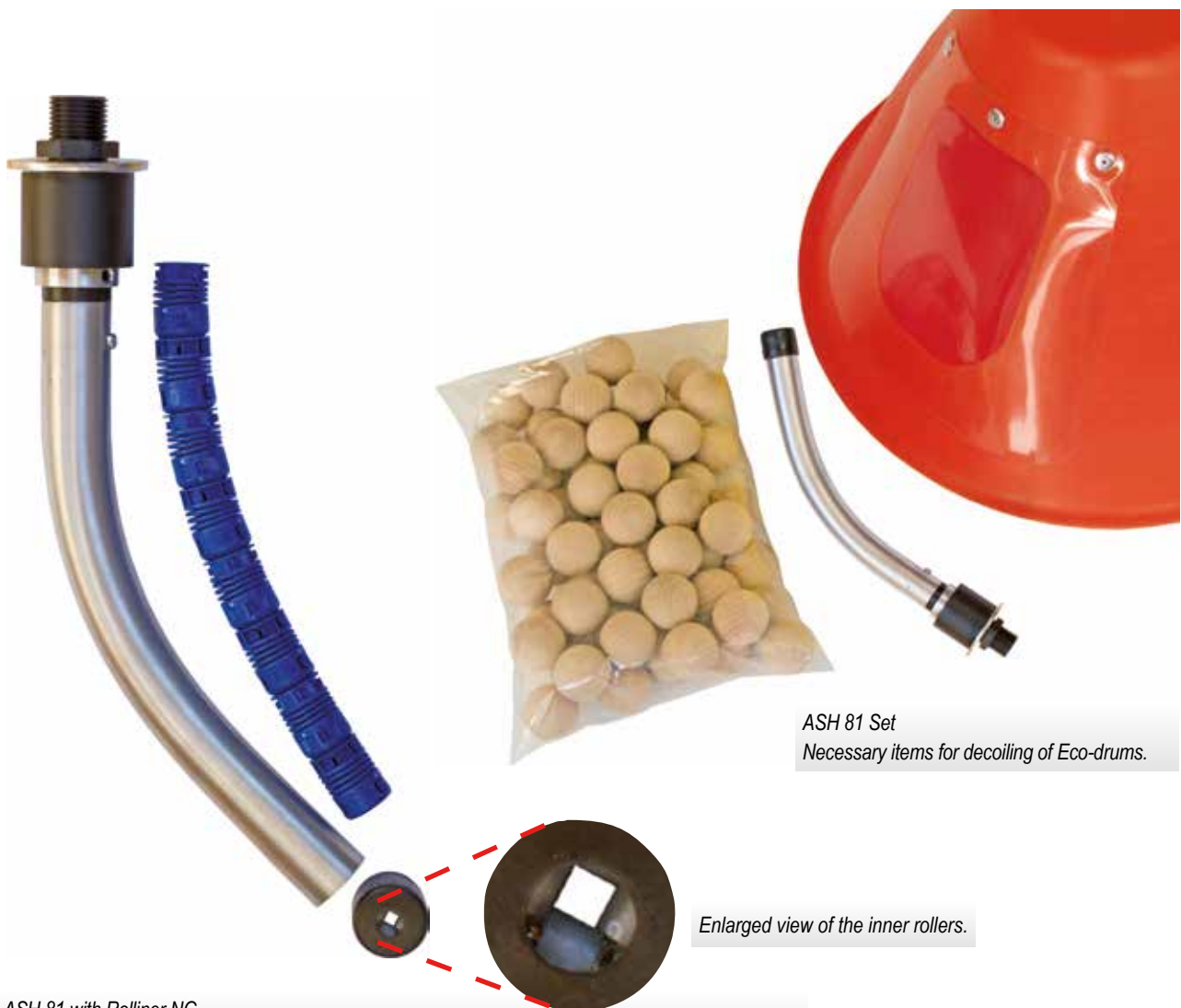
ASH 80 built into drum hood RND-520

For latest details regarding the content of this page see www.migal.co

Decoiling aids

Overview table

Item number	Designation	Weight
10,10,3,0003	Decoiling aid ASH 81	0.9 kg
10,10,3,0004	Inlet for ASH 81	0.05 kg
10,10,3,0002	Beech wooden ball 40 mm	0.023 kg



ASH 81 Set
Necessary items for decoiling of Eco-drums.

Enlarged view of the inner rollers.

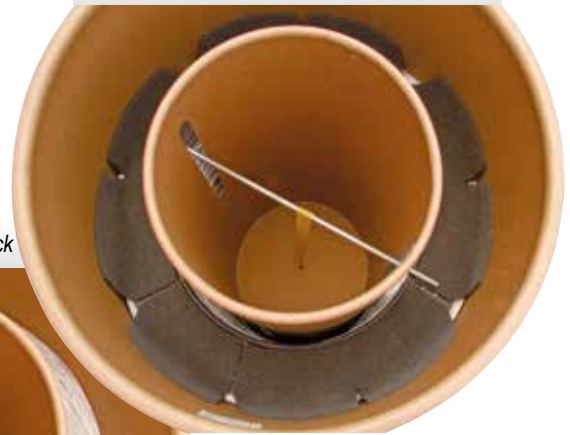
ASH 81 with Rolliner NG
The Rolliner NG which is built into the decoiling finger cares for wear free and low friction operation.

For latest details regarding the content of this page see www.migal.co

Decoiling aids

Installation of Eco-drums

1. Eco-drum in the state of delivery



2. Eco-drum with removed transport lock



3. Eco-drum with 70 wooden balls à 40 mm diameter



4. Eco-drum ready equipped for trouble-free operation



For latest details regarding the content of this page see www.migal.co

Decoiling aids

Decoiling aid TOU400/580 for Jumbo-drums

Our jumbo drums are mainly used for aluminum alloys of the 5000 series, but also for copper alloys. Specifically the 5000 alloys are particularly prone to knot formation.



The newly developed decoiling aid of MIGAL.CO reliably prevents the formation of wire knotting. Due to the plastic ring directly sitting on the wire, the individual turns can not escape unintentionally. A rotating decoiling finger guides the wire as much as possible and avoids free loops of wire which otherwise could form knots. The decoiling finger is equipped with the Rolliner NG and therefore shows extremely low friction and wear.

During wire removal, the decoiling aid falls to the bottom of the wire drum, is withdrawn and used in the next drum.

Thus, costly downtime and system failures can be avoided. The decoiling aid is protected by the utility model DE 20 2011 108 769.0.

*TOU400/580
Decoiling aid for Jumbo packs with rotating decoiling finger.*



*TOU400/580 Set
Necessary items for decoiling of Jumbo packs (Aluminum- and copper alloys).*

Overview table

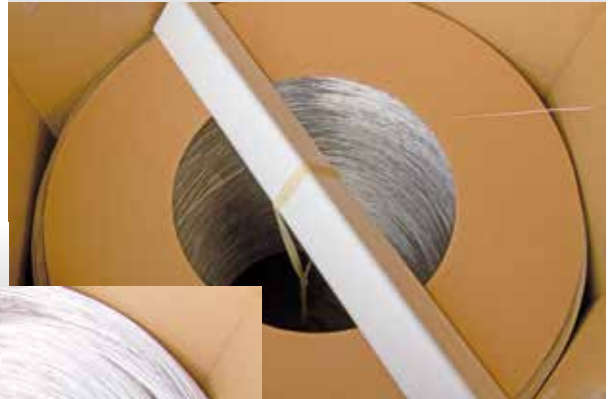
Item number	Designation	Weight
10,10,4,0001	Decoiling aid TOU400/580	1.0 kg

A video of the decoiling aid in action is available at www.migal.co

Decoiling aids

Installation of Jumbo-drums

1. Jumbo-drum in the state of delivery



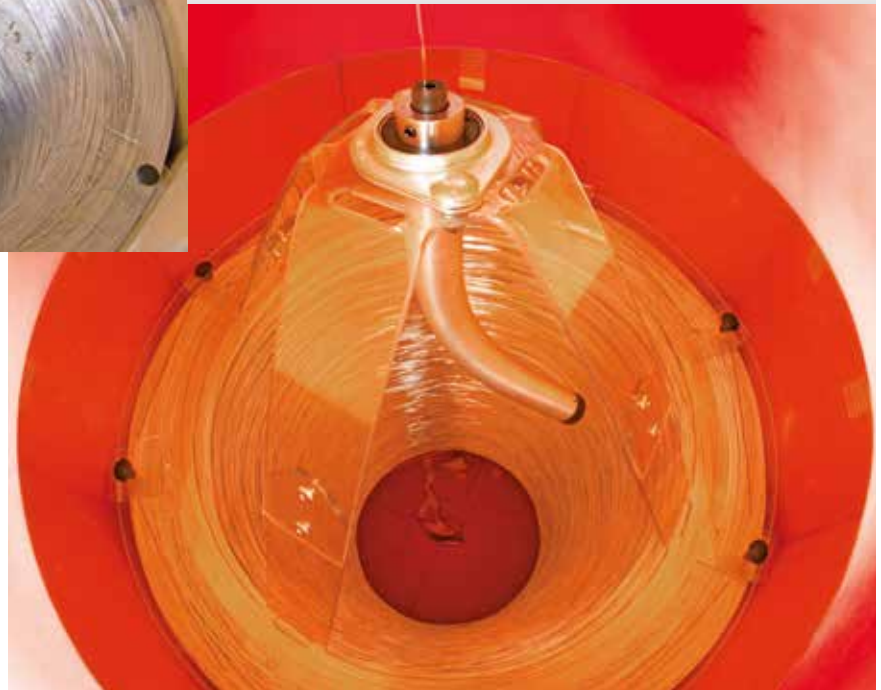
2. Jumbo-drum with removed transport lock



3. Jumbo-drum with decoiling aid



4. Jumbo-drum ready for operation



For latest details regarding the content of this page see www.migal.co

Drum connector

Connector for drum hoods

A connector is required to attach the conduit to the drum hood. This provides a 1/4" internal thread and a 1/2" external thread. All conduits from our product range can be connected. A variant with a ceramic insert is available for steel wires.



*AER201-K Inlet AER201
Inlet for Aluminum- and copper alloys (right),
and for steel with ceramic insert (left)*



Individual parts of drum connector AER 201



Inlet for drum hood complete



Sideview of the AER 201 built into drum hood

Overview table

Item number	Designation	Weight	Additional information
10,10,5,0005	Connector drum hood AER201	0.05 kg	Plastic inlet for aluminum and copper alloys
10,10,5,0006	Connector drum hood AER201-K	0.05 kg	Ceramic inlet for steel wires

For latest details regarding the content of this page see www.migal.co

Pulley

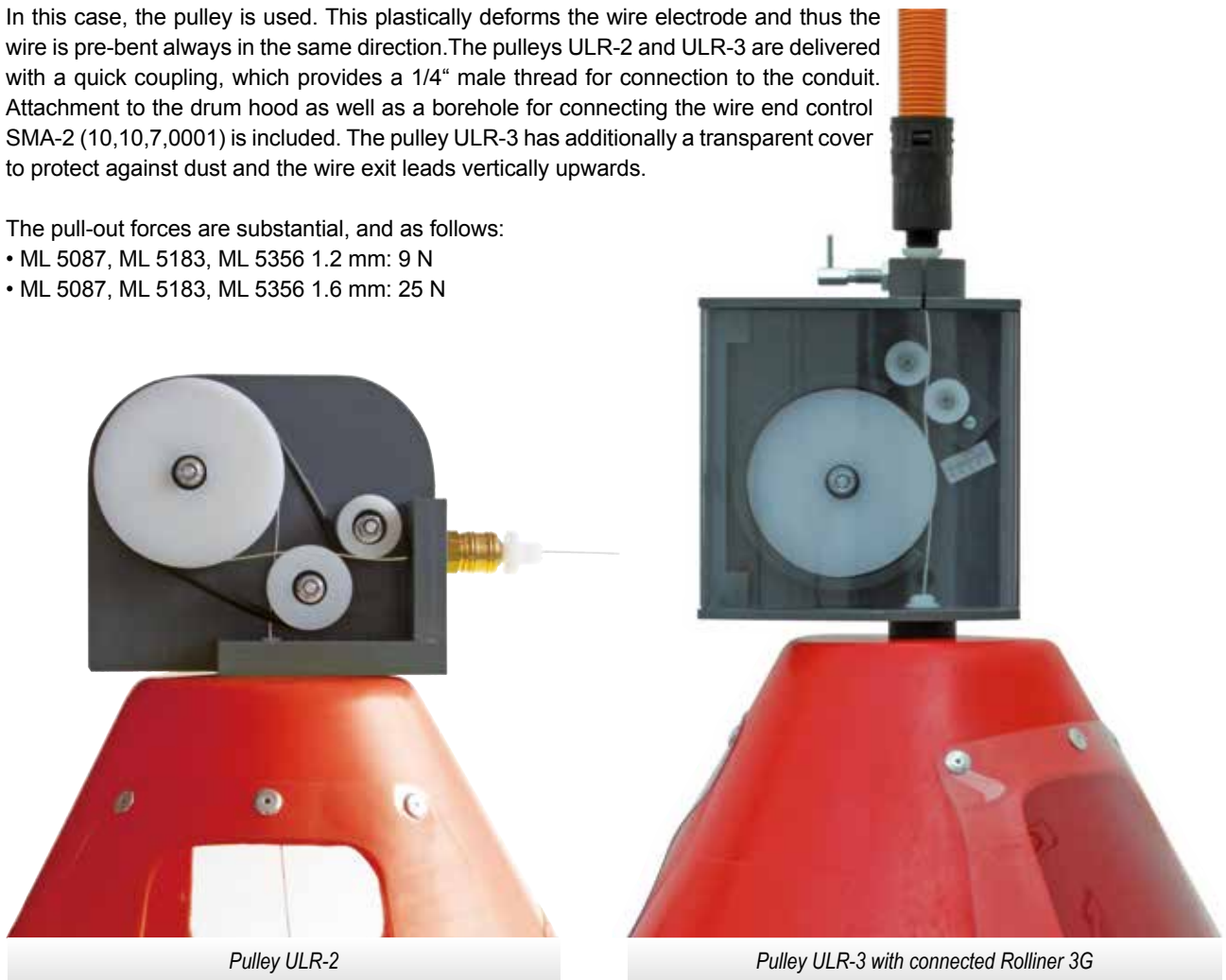
Pulley for straight welds

Wire from drums with alloys of the 5000 series is preformed sinusoidal. In mechanized welding this may lead to inaccurate positioning of the wire and specifically when small weld cross sections are welded with large wire diameters (e.g. a4 fillet weld with 1.6 mm wire diameter).

In this case, the pulley is used. This plastically deforms the wire electrode and thus the wire is pre-bent always in the same direction. The pulleys ULR-2 and ULR-3 are delivered with a quick coupling, which provides a 1/4" male thread for connection to the conduit. Attachment to the drum hood as well as a borehole for connecting the wire end control SMA-2 (10,10,7,0001) is included. The pulley ULR-3 has additionally a transparent cover to protect against dust and the wire exit leads vertically upwards.

The pull-out forces are substantial, and as follows:

- ML 5087, ML 5183, ML 5356 1.2 mm: 9 N
- ML 5087, ML 5183, ML 5356 1.6 mm: 25 N



Pulley ULR-2

Pulley ULR-3 with connected Rolliner 3G

Overview table

Item number	Designation	Weight
10,10,6,0001	Pulley ULR-2	0,85 kg
10,10,6,0002	Pulley ULR-3	1,05 kg

For latest details regarding the content of this page see www.migal.co

Wire end control

End of wire clearly detected

For the detection of the wire end a non-contact sensor is available. The proximity switch is closed when welding wire is available. The operating voltage is 24 Volts. Included is the power cable (10 m), the sensor block and the proximity switch. The terminal block on the inlet side has a 1/4" male thread (connection to drum connector AER-201 or decoiling aid ASH-81) and the outlet side a 1/4" internal thread and a 1/2" external thread (connection to the conduit).



Overview table

Item number	Designation	Weight
10,10,7,0001	Sensor with power cable SMA-2	0.05 kg
10,10,7,0002	Wire end sensor block DES-2	0.03 kg

A data sheet of the sensor is available at www.migal.co

Conduits

Toughliner - for un-, low- and high-alloy steel wires

Toughliner is the conduit with extremely high wear resistance and low coefficient of friction at the same time.



The spiral is made of flat steel wire with rounded edges and a tensile strength of more than 1,500 N/mm². The tube is encased in two layers with PE inside and outside with PA12. This gives an excellent durability, achieved even under extreme conditions. The hose is so stiff on one hand, that it always sets the largest possible bending radius (as shown on photograph page 20) and yet so flexible that even strong robot movements over a long time can be tolerated.

With the coupling CRNG40 the Tough liner is connected without interfering transitions.



Toughliner detail with quick coupling CRNG40



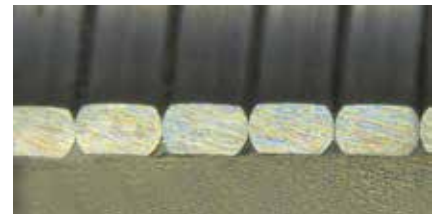
Toughliner with plug CRNG40
The Toughliner is completely passed through the coupling, and the wire doesn't touch the coupling at any point. The Toughliner is directly connected by the coupling and there are no problems during wire inching.



Toughliner with quick coupling CRNG40
The Toughliner is completely passed through the coupling, and the wire doesn't touch the coupling at any point. The Toughliner is directly connected by the coupling and there are no problems during wire inching.

Technical data Toughliner, Extra, Flex

Weight of product	0.25 kg/m
Coefficient of friction	0.20
Outside-/Inside diameter	11.7 mm / 5.7 mm
Diameter of welding wire	up to 2.4 mm



Section Toughliner
The Toughliner is made of flat rolled round wire. Thus, the edges are rounded and sharp edges are avoided.

For latest details regarding the content of this page see www.migal.co

Conduits

Toughliner EXTRA - for extreme demands

Toughliner Extra is built of a flat steel wire with rounded edges and an additional fortification with longitudinal wires. This allows Toughliner Extra to withstand extreme tensile stress. The couplings CRNG40 may be used the same way as with Toughliner.



Structure of Toughliner EXTRA



Cross section of Toughliner EXTRA

Toughliner FLEX - extremely flexible

Toughliner Flex consists of a round wire spiral with a soft sheathing and is thus extremely flexible. Toughliner Flex can be used in areas with extreme flexibility requirements. The couplings CRNG40 may be used the same way as with Toughliner.



Structure of Toughliner FLEX



extremely flexible

Overview table

Item number	Designation	Weight
10,40,1,0002	Conduit Toughliner	0.25 kg/m
10,10,7,0006	Conduit Toughliner EXTRA	0.25 kg/m
10,10,7,0007	Conduit Toughliner FLEX	0.25 kg/m

For latest details regarding the content of this page see www.migal.co

Conduits

Softliner - for non-ferrous metals and high alloyed steels

Softliner is a polyethylene conduit with high density, low coefficient of friction and good durability.



Softliner is used for welding consumables from aluminum and copper alloys and high-alloy steels. The hose is so stiff on one hand, that it always sets the largest possible bending radius and yet so flexible that even strong robot movements over a long time can be tolerated.

With the coupling CRNG40 the Softliner is connected without interfering transitions.



Softliner detail with quick coupling CRNG40



*Softliner with plug CRNG40
The Softliner is completely passed through the coupling, and the wire doesn't touch the coupling at any point. The Softliner is directly connected by the coupling and there are no problems during wire inching.*



*Softliner with quick coupling CRNG40
The Softliner is completely passed through the coupling, and the wire doesn't touch the coupling at any point. The Softliner is directly connected by the coupling and there are no problems during wire inching.*

Technical data

Weight of product	0.05 kg/m
Coefficient of friction	0.20
Outside-/Inside diameter	11.7 mm / 7.7 mm
Diameter of welding wire	up to 2 mm

Overview table

tem number	Designation
10,40,1,0001	Conduit Softliner



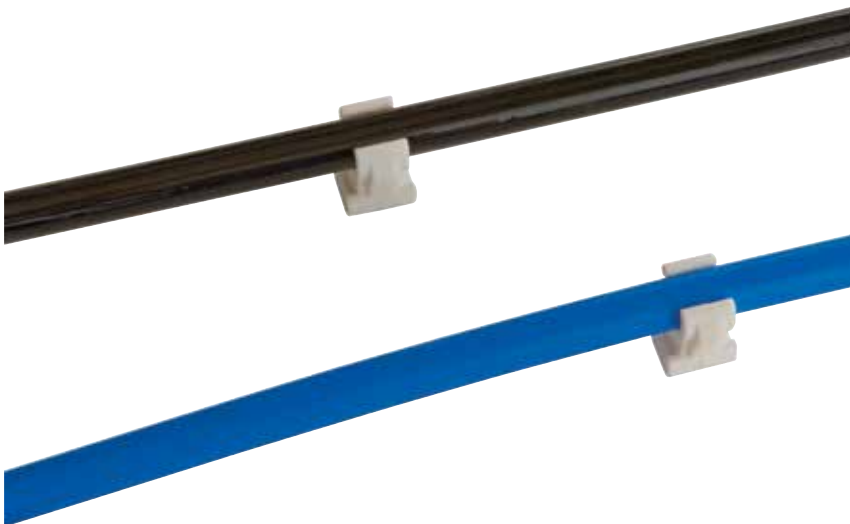
*Cutting tool Cutty
The Softliner can be easily and precisely cut by our cutting tool Cutty.*

For latest details regarding the content of this page see www.migal.co

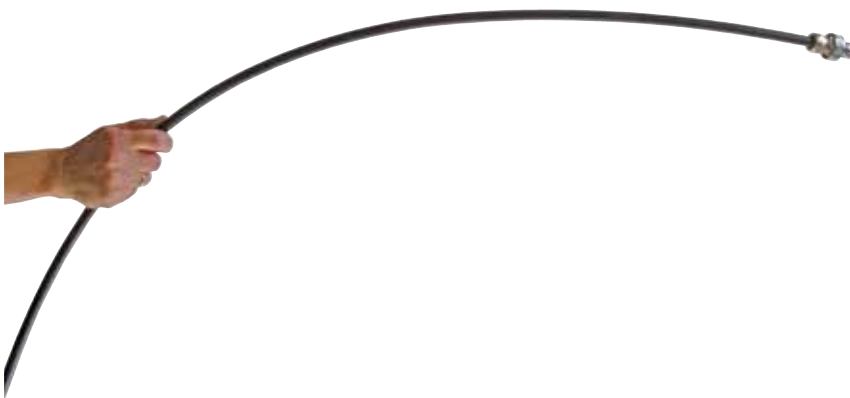
Conduits

Wall brackets for Toughliner and Softliner

For the attachment of Toughliner, Toughliner Extra, Toughliner Flex and Softliner to a wall a suitable bracket is available. The internal thread is M6.



Wall bracket for Toughliner and Softliner side view



The Toughliner is stiff enough for a uniform bend radius.



Wall bracket for Toughliner and Softliner topview

Overview table

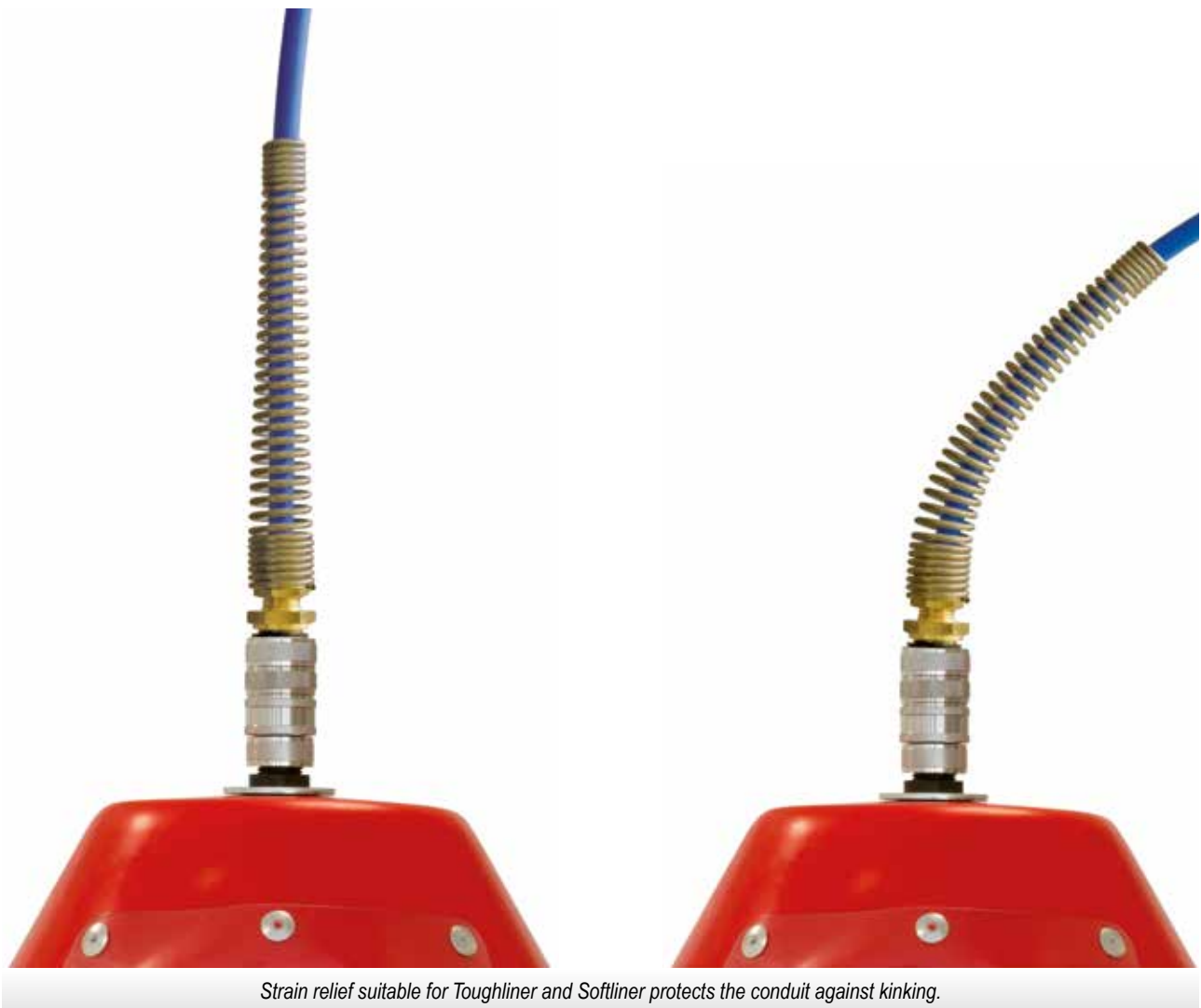
Item number	Designation	Weight
10,40,1,0005	Wall bracket for Toughliner and Softliner	0.01 kg

For latest details regarding the content of this page see www.migal.co

Conduits

Strain relief for Toughliner and Softliner

Kinking of the conduit directly behind the connection can be avoided. The strain relief is recommended for extremely fast robot movements.



Overview table

Item number	Designation	Weight
10,40,1,0003	Strain relief for Softliner and Toughliner	0.25 kg

For latest details regarding the content of this page see www.migal.co

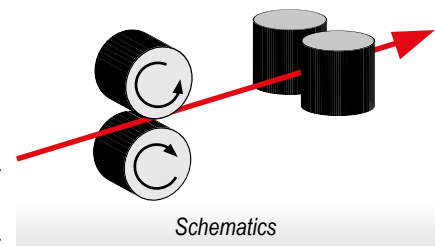
Conduits

Rolliner NG - the second generation

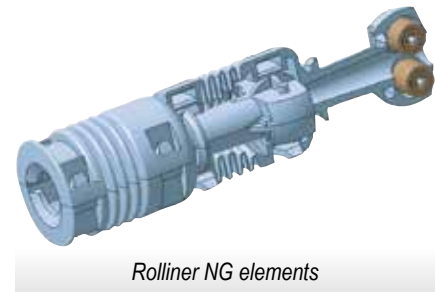
ROLLINER NG is the second generation of a completely new approach to wire feeding.

Away from friction in liners, away from abrasion, from fluctuating feeding and from unnecessary maintenance. With ROLLINER feeding occurs through rolls only, shifted by 90° - without any sliding friction. ROLLINER NG has a diameter of 20 mm and may be shortened or lengthened easily – without any tools. The maximum bending radius is 120 mm and the weight was substantially reduced – ideal for highly dynamic movements.

ROLLINER NG is the ultimate solution for any wire feeding!



Schematics



Rolliner NG elements

Application

- Connecting bulk-wire systems to the wire-feeder
- Connecting wire-feeders to welding guns

Advantages

- No abrasion due to extremely small forces on the wire
- Reduced cost due to the reduction to one wire drive only, and no maintenance necessary
- Stable arc due to precise wire feeding
- Simplified setup of welding systems due to more freedom in situating the bulk-wire system

Technical data

Outside diameter	20 mm
Weight / meter	150 grams
Min. bending radius for wire inching	150 mm
Min. bending radius	120 mm
Maximum torsion	180° / meter
Max. inner diameter	2 mm (wire 1.6)
Recommended wire diameter	0.6 - 1.2 mm
Length per packaging unit	25 m
Coefficient of friction	0.08

Warranty

For Rolliner we provide a warranty of 1 year!

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner NG - the second generation

Delivery form

ROLLINER NG is supplied by the meter. The required connectors can be easily fitted by the user. The connector ENG20S represents a 1/4" female thread. For the connection to the drum hood connector AER-200 either a screw connector RNG20 or a quick connector CRNG20 is required. Alternatively, the wire end control (page 17) can be used.

For the connection to the wire feeder by the universal connector ASR-PR no additional coupling is required.

Note: The connector ENG20S with strain relief RES20 replaces the earlier product ENG20!



Rolliner NG with connector ENG20S, strain relief RES20, quick coupling CRNG20, connector drum hood AER201.



Rolliner NG in standard configuration with connector ENG20S and strain relief RES20.

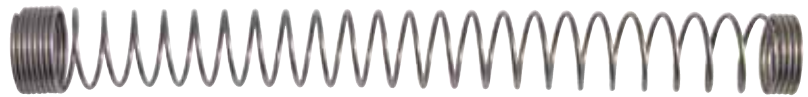
For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner NG - the second generation



Connector ENG20S



Strain relief RES20

Overview table

Item number	Designation	Weight
10,30,1,0100	Rolliner NG	0.15 kg/m
10,30,1,0016	Connector ROLLINER NG ENG20S	0.04 kg
10,30,1,0017	Strain relief for Rolliner NG RES20	0.05 kg

Perfect cutting of Softliner and Rolliner NG

For cutting of Softliner and Rolliner NG the cutting tool CTY1 is available. It makes perfect cuts in no time.



Overview table

Item number	Designation	Weight
10,40,1,0004	Cutty - cutting tool for Rolliner and Softliner	0.05 kg

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner 3G - up to 1.6 mm wire diameter and no tools needed for assembly

Rolliner 3G is the continuation of the roll-guided wire feed hose, which has been successful for 10 years, with significant improvements. The individual elements contain a pair of rollers and are connected to one another via joints. Each element is turned by 90 ° to the adjacent element, whereby the welding wire is guided entirely by rollers. As a result, the friction is significantly reduced in comparison to conventional wire guide hoses. Between the individual pairs of rollers there is a conical guide, which during threading leads the wire to the next pair of rollers, thus ensuring trouble-free threading over narrow radii.

Effortless threading by means of a patented, conical guide of the wire from roller pair to roller pair!



Advantages

- Due to its low friction, Rolliner 3G allows significantly longer wire runs between the pay-off pack and the wire feeder. In many cases it is possible to avoid additional drives.
- Rolliner 3G is not a wearing part and is maintenance-free for many years. The welding process becomes more stable as less slippage occurs due to the low forces in the wire transport system.
- Rolliner 3G can be shortened or extended without tools. For shorting the use of a separation tool is recommended.

Technical Data

Lengths	any - maximum length of protective hose 25 m, can be extended with hose connector
Outside diameter	28.5 mm
Bending radius	minimum 70 mm at wire threading and during operation
Maximum wire diameter	1.6 mm
Conveyable alloys	all material types can be transported by Rolliner 3G (round wires), i. e. steel, stainless steel, aluminum, copper, etc.
Maximum wire feed speed	30 meters per minute
Weight per meter	200 grams
Wire temperature	max. 40° Celsius
Coefficient of friction	0.08

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner 3G - up to 1.6 mm wire diameter and no tools needed for assembly

Overview table

Item number	Designation	Weight
10,30,3,0001	Connector wire inlet Rolliner 3G with retaining clip	0.05 kg
10,30,3,0002	Connector wire outlet Rolliner 3G with retaining clip	0.05 kg
10,30,3,0003	Retaining clip Rolliner 3G	0.004 kg
10,30,3,0100	Rolliner 3G with protective hosePA12	0.2 kg/m
10,20,2,0004	Connector protective hose PA12 Rolliner 3G	0.03 kg
10,40,2,0001	Separation tool Rolliner 3G	0.05 kg
10,30,1,0003	Quick coupling CRNG20 complete (plug and coupling)	0.08 kg
10,10,8,0001	Plug CRNG40	0.07 kg
10,10,8,0002	Coupling CRNG40	0.16 kg



Rolliner 3G without protective hose, view of single element



Arrows on each element of the Rolliner 3G show the wire feed direction as well as the insertion direction

Easy assembly

- Insert elements into protective hose
- Insert the holding clips at the inlet and outlet
- Connect the wire inlet and outlet



Rolliner 3G elements without protective hose

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner 3G - up to 1.6 mm wire diameter and no tools needed for assembly

Connectors

The inlets and outlets of the Rolliner 3G have a 1/4" internal thread and a 1/2" external thread. As a result, the CRNG20 or CRNG40 quick couplings can be used.

For an overview of all couplings with fotos and item numbers see page 40.



Rolliner 3G complete with protective hose connector and quick coupling CRNG 40



Separation tool in a correct position



Retaining clip Rolliner 3G



Wire inlet Rolliner 3G



Wire outlet Rolliner 3G

For latest details regarding the content of this page see www.migal.co

Conduits

Hose holder and accessories

For Rolliner NG, Rolliner 3G, as well as the protective hose PA12 suitable brackets and wear rings are offered.

Overview table

Item number	Designation	Weight
10,30,1,0008	Wall bracket for Rolliner NG SNG20	0.02 kg
10,30,1,0010	Wall bracket for protective hose PA12	0.05 kg
10,30,1,0009	Wear ring for protective hose PA12	0.02 kg
10,30,1,0014	Hose holder for Rolliner NG, 3G and protective hose PA12	0.1 kg



Wall bracket for protective hose PA12



Wall bracket for Rolliner NG SNG20



Wear ring for protective hose PA12



Hose holder for Rolliner NG and protective hose PA12



For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner XL2 - up to 4 mm wire diameter and no tools needed for assembly

Rolliner XL2 is the continuation of the roll-guided wire feed hose, which has been successful for 10 years, with significant improvements. The individual elements contain a pair of rollers and are connected to one another via joints. Each element is turned by 90 ° to the adjacent element, whereby the welding wire is guided entirely by rollers. As a result, the friction is significantly reduced in comparison to conventional wire guide hoses. Between the individual pairs of rollers there is a conical guide, which during threading leads the wire to the next pair of rollers, thus ensuring trouble-free threading over narrow radii.

Effortless threading by means of a patented, conical guide of the wire from roller pair to roller pair!

Advantages

- Due to its low friction, Rolliner XL2 allows significantly longer wire runs between the pay-off pack and the wire feeder. In many cases it is possible to avoid additional drives.
- Rolliner XL2 is not a wearing part and is maintenance-free for many years. The welding process becomes more stable as less slippage occurs due to the low forces in the wire transport system.
- Rolliner XL2 can be shortened or extended without tools.

Technical Data

Lengths	any - maximum length of protective hose 25 m, can be extended with hose connector
Outside diameter	42.5 mm (55 mm at the connectors)
Bending radius	minimum 150 mm at wire threading and during operation
Maximum wire diameter	4 mm
Conveyable alloys	all material types can be transported by Rolliner XL2 (round wires), i. e. steel, stainless steel, aluminum, copper, etc.
Maximum wire feed speed	30 meters per minute
Weight per meter	500 grams
Wire temperature	maximum 40° Celsius
Coefficient of friction	0.08

Connectors

The inlets and outlets of the Rolliner XL2 have a 1/4" internal thread and a 1/2" external thread. As a result, the CRNG20 or CRNG40 quick couplings can be used. For an overview of all couplings with fotos and item numbers see page 40.

For latest details regarding the content of this page see www.migal.co



Conduits

Rolliner XL2 - up to 4 mm wire diameter and no tools needed for assembly

Overview table

Item number	Designation	Weight
10,20,2,0001	Connector wire inlet Rolliner XL2 with retaining clip	0.1 kg
10,20,2,0002	Connector wire outlet Rolliner XL2 with retaining clip	0.1 kg
10,20,2,0003	Retaining clip Rolliner XL2	0.004 kg
10,20,2,0100	Rolliner XL2 with protective hose PA12	0.5 kg/m
10,30,3,0004	Connector protective hose PA12 Rolliner XL2	0.03 kg
10,30,1,0003	Quick coupling CRNG20 complete (plug and coupling)	0.08 kg
10,10,8,0001	Plug CRNG40	0.07 kg
10,10,8,0002	Coupling CRNG40	0.16 kg

Easy assembly

- Insert elements into protective hose
- Insert the holding clips at the inlet and outlet
- Connect the wire inlet and outlet



Rolliner XL2 Elements



Arrows on each element of the Rolliner XL2 show the wire feed direction as well as the insertion direction

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner XL2 - up to 4 mm wire diameter and no tools needed for assembly



Retaining clip Rolliner XL2



Wire inlet and wire outlet with retaining clip



Hose connector for PA 12



Wire inlet Rolliner XL2



Wire outlet Rolliner XL2



Rolliner XL2 with quick coupling CRNG40

For latest details regarding the content of this page see www.migal.co

Conduits

Rolliner XL2 - up to 4 mm wire diameter and no tools needed for assembly

Wall bracket

By means of a wall bracket the Rolliner XL2 can be attached to a wall.



Wall bracket Rolliner XL2 sideview



Wall bracket Rolliner XL2 diagonal view

Overview table

Item number	Designation	Weight
10,20,2,0005	Wall bracket for Rolliner XL2	0.02 kg

For latest details regarding the content of this page see www.migal.co

Couplings & Connectors

Screw- and quick couplings for Rolliner NG, Rolliner 3G and Rolliner XL2

These couplings are used to connect the Rolliner NG with the drum hood connector AER-201 or the wire end control. A plastic insert protects the wire against damage. It must be inserted in the direction of the wire transport. The outer thread is 1/4".



Screw coupling RNG20



Quick coupling CRNG20



Quick coupling CRNG20 divided

Overview table

Item number	Designation	Weight
10,30,1,0004	Screw coupling RNG20	0.025 kg
10,30,1,0003	Quick coupling CRNG20	0.08 kg

Coupling CRNG40 for Toughliner, Softliner, Rolliner 3G and Rolliner XL2

The coupling CRNG40 is used to connect the conduits Toughliner, Softliner, Rolliner 3G or Rolliner XL2.

The special feature of this coupling is that the wire can never touch the metal parts of the coupling. This is achieved by the fact that the conduits are directly routed through the coupling and face each other nearly without a gap. The coupling provides a 1/2" internal thread. Softliner or Toughliner are fixed by a compression fitting.

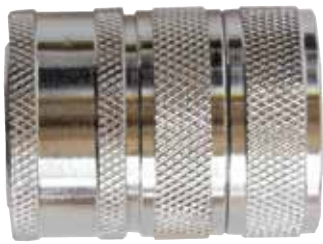
For latest details regarding the content of this page see www.migal.co

Couplings & Connectors

Coupling CRNG40 for Toughliner, Softliner, Rolliner 3G and Rolliner XL2

Overview table

Item number	Designation	Weight
10,10,8,0001	Plug CRNG40	0.07 kg
10,10,8,0002	Coupling CRNG40	0.16 kg
10,10,8,0003	Compression fitting CRNG40	0.03 kg
10,10,8,0006	Adapter 1/2"-1/4" with internal thread	0.07 kg



Coupling CRNG40



Plug CRNG40



Compression fitting CRNG40



*Adapter 1/2" - 1/4" with internal thread
Connects to various connectors for wire
feeders.*

For latest details regarding the content of this page see www.migal.co

Couplings & Connectors

Coupling CRNG40 for Toughliner, Softliner, Rolliner 3G and Rolliner XL2



Quick coupling CRNG40 with Softliner on drum hood.



Plug CRNG40 on drum hood.

Connectors to wire feeders

To connect the Rolliner, as well as Softliner and Toughliner various fittings to wire feeders are available.



Connector for wire feeders ASRPR with plastic insert
Fits for Fronius, EWM, Lorch, Rehm, Kemppi (9,5/11,5/12/13 mm).
Suitable for aluminum- and copper alloys.

Universal connector for wire feeders ASRPR brass
Suitable for Fronius, EWM, Lorch, Rehm, Kemppi
(9,5/11,5/12/13 mm). For steel wires only.

For latest details regarding the content of this page see www.migal.co

Couplings & Connectors

Connectors to wire feeders



Connector CLOOS



Connector SKS-PF5



Connector SKS-Q591D



Adapter 1/2" to M20

Reference and overview table

Item number	Designation	Fits for	Weight	Additional information
10,20,1,0012	Universal connector for wire feeders ASRPR with plastic insert	Fronius, EWM, Lorch, Rehms	0.07 kg	for non ferrous metals
10,20,1,0013	Universal connector for wire feeders ASRPR with brass insert	Fronius, EWM, Lorch, Rehms	0.07 kg	for steels
10,20,1,0014	Adapter 1/2" to M20	Fronius	0.007 kg	
10,20,1,0009	Connector CLOOS	CLOOS	0.005 kg	all alloys
10,20,1,0011	Connector SKS PF5	SKS PF5	0.05 kg	all alloys
10,20,1,0010	Connector SKS Q591D	SKS Q591D	0.05 kg	all alloys

For latest details regarding the content of this page see www.migal.co

Wire feeder

Pneumatic feed assist DLDA1 for extreme wire feeding distances

The friction of the wire in the conduit is caused by the fact that the wire rests against the inside of the tube. This grows exponentially with the bending angle and, depending on the coefficient of friction rapidly to a complete blocking of the wire electrode.

The pneumatic feed assist DLDA1 exerts a permanent and continuously adjustable pressure to the wire electrode. The latter is pressed against the outer wall of the conduit, where it causes about the same friction as otherwise against the inner wall. Ideally, the air pressure is adjusted so that the wire at the outlet of the conduit may be pulled or blocked with just two fingers (few Newtons). The wire feeder can then supply any quantity of wire with the least amount of force.

The Euler-Eytelwein formula fails here. However, approximately the double angle can be achieved by using the DLDA1.

The DLDA1 can either be placed on the drum hood with the connector AER200 or decoiling aid ASH-80, or just snapped in between the conduit (Toughliner, Softliner, Rolliner). The coupling CRNG40 is provided for standard use with the DLDA1.



*Pneumatic feed assist DLDA-1 on drum hood
Using the inlet guide 1/4" the pneumatic feed assist
connects to the drum connector AER-201
or the decoiling finger ASH-81.*

Technical data

Wire feed speed	0 - 30 m/min
Feeding force	0-60 N (adjustable by air pressure 0-6 Bar)
Dimensions L x B x H	100 x 140 x 160 mm
Weight	5.1 kg
Wire diameter	0.8 - 1.6 mm
Air consumption	approx. 20 - 30 cbm/h

For latest details regarding the content of this page see www.migal.co

Wire feeder

Pneumatic feed assist DLDA1 for extreme wire feeding distances

Overview table

Item number	Designation	Weight
10,50,1,0001	Pneumatic feed assist DLDA-1	5.1 kg
10,50,1,0002	Maintenance unit for DLDA-1	0.9 kg
10,50,2,0001	Inlet/outlet guide 1/4" für DLDA-1	0.02 kg
10,50,2,0002	Inlet/outletguide 1/2" für DLDA-1	0.04 kg
10,50,3,0008	Set feed rolls 0,8 mm Fe	0.11 kg
10,50,3,0010	Set feed rolls 1,0 mm Fe	0.11 kg
10,50,3,0012	Set feed rolls 1,2 mm Fe	0.11 kg
10,50,3,0016	Set feed rolls 1,6 mm Fe	0.11 kg
10,50,4,0008	Set feed rolls 0,8 mm Al	0.11 kg
10,50,4,0010	Set feed rolls 1,0 mm Al	0.11 kg
10,50,4,0012	Set feed rolls 1,2 mm Al	0.11 kg
10,50,4,0016	Set feed rolls 1,6 mm Al	0.11 kg



Pneumatic feed assist DLDA-1 with conduit in in- and outlet



*Inlet/outlet guide 1/2" for DLDA-1
The quick connector CRNG-40 connects to the DLDA-1 with the inlet guide 1/2".*



*Inlet/outlet guide 1/4" for DLDA-1
Connects to the drum connector AER-201, the decoiling finger ASH-81 or to the Rolliner.*

For latest details regarding the content of this page see www.migal.co

Basket spool adapters

Adapters - for basket spools

Adapters are required for some applications and some spool. Additionally to the shown variants we also have the option for custom designs. Please contact us.

Adapter for basket spool B 300

The wire basket B-300 is very environmentally friendly as it can easily be disposed as scrap steel. With this adapter, the wire basket can be attached to the common 52 mm mandrel of all standard wire feeders.

The adapter is easy to put together using zip closure. All basket spools B 300 according to EN ISO 544:2011 can be used.



Overview table

Item number	Designation	Weight
10,70,1,0001	Adapter for basket spool B 300	0,8 kg

For latest details regarding the content of this page see www.migal.co

Anti spatter

Ceramic surface protection KRA-1000 for fixtures and welding torches

The ceramic surface protection spray KRA-1000 protects surfaces exposed to temperatures up to 1000° C. The lifetime of MSG gas nozzles and contact tubes, electrodes of resistance welding machines and outlet nozzles of cold wire feeders for laser and plasma welding will be prolonged significantly. Surfaces of welding fixtures and clamping elements are optimally protected from weld spatter or other sparks.

Benefits

- Spatter will either stick not to the surface or will be much easier to remove from nozzles or fixtures
- Less downtime and maintenance costs due to less frequent cleaning
- Up to ten times lifetime of nozzles and devices
- Stable welding processes, and thus less scrap



Samples of gas nozzles and contact tips with ceramic coating

Application

Shake the can for at least 30 seconds before each use. Spray a thin film from a distance of approx. 30 cm. Avoid repeated overspray and consequent thick layers.

Allow sprayed film to dry before use for 30 seconds!



Warning

- Extremely flammable. Keep away from open flames or other sources!
- Irritating to eyes and mucous membranes
- Pressurized container
- Skin contact may cause skin dryness or cracking
- Inhalation of vapors may cause drowsiness and dizziness
- Do not expose aerosol to direct sunlight or temperatures above 50° C
- Do not pierce or burn, even after use
- Do not spray on an open flame or any hot surfaces
- Keep away from sources of ignition - No smoking!
- Keep out of the reach of children
- Use only in well-ventilated areas
- Avoid contact with skin and eyes



Welding fixture with ceramic coating

Overview table

Item number	Designation	Weight
10,60,1,0001	Ceramic spray KRA-1000 400 ml	0,38 kg

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