

RITTAL AUTOMATION SYSTEMS

Tools

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Harness your potential for greater productivity

Rittal offers quality tools made from high-quality materials and semi-automated machines for wire assembly and copper processing for professional industry use.

Ergonomic, efficient handling systems for transport and lifting operations round out our standard portfolio.

We can supply all the machining and handling technology you need for time-saving and cost-cutting manufacturing processes, all from a single source.



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

FRIEDHELM LOH GROUP



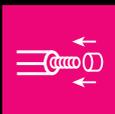
Perfecting the hand tool

High-quality hand tools for professional use in industry and trade,
from page 565



Simplify handling

Ergonomic, efficient handling systems for transport and lifting operations,
from page 606



Systematise wire processing

Professional, rational solutions for manual wire machining and processing
Crimping tools, from page 574
Semi-automatic machines, from page 632



Streamline wiring

To complete the process chain, Rittal Automation Systems are involved in
developing pioneering wiring solutions, right through to full automation.



Automate machining

Fully automated milling or laser machining, plus machining of cable ducts
and busbars
Busbar machining, from page 638



Make component mounting more flexible

Automatic manufacturing and component mounting of terminal strips,
from page 658

The right tool for every application!

All from a single source – Rittal offers a comprehensive range of hand-held tools for professional support with your work operations. All the machining and handling technology you need for time-saving and cost-cutting manufacturing processes, all from a single source.

■ Pliers
 ■ Cutting tools

■ Tools for cable processing

■ Bits
 ■ Bit holders

■ Manual and electric hand-held hydraulic punches

■ Hole punches

■ Screwdrivers, insulated
 ■ Screwdrivers, uninsulated

Li-Ion 18V 3.0Ah

Ø 32,5 mm

Tool bag

Configured

Configured tool bag comprising a selected range of Rittal hand tools, designed especially for electricians. The practical, high-quality shoulder bag may be used either as a tool bag or laptop case.

Design:

- 19 separate compartments for tools
- Cushioned compartment for laptop or tablet
- Document wallet
- Two additional storage pockets inside

Benefits:

- Careful storage
- Shoulder pad for comfortable carrying
- Flexible use

Material:

- Polyester

Supply includes:

- Screwdriver, insulated SL 3.5 x 0.6 (Model No.: 4052.102), SL 6 x 1.2 (Model No.: 4052.107), PZ 2 (Model No.: 4052.122)
- Screwdriver, non-insulated PZ 2 (Model No.: 4052.022), SL 6 x 1.2 (Model No.: 4052.011), TX 20 (Model No.: 4052.055), TX 25 (Model No.: 4052.056), TX 30 (Model No.: 4052.058)
- Bit holder with handle, magnetic (Model No.: 4053.300)
- Bit set with bit holder, 7-piece (Model No.: 4053.420)
- Crimping pliers for wire end ferrules, for cross-section 0.5 - 6 mm², square crimp (Model No.: 4054.001)
- Wire stripper for wire end ferrules, for cross-section 0.02 - 11 mm² (Model No.: 4054.300)
- Stripping tools for cables Ø 2.5 - 11 mm (Model No.: 4054.400), for cables Ø 8 - 13 mm (Model No.: 4054.405)
- Side cutter for cables Ø 0.2 - 11 mm (Model No.: 4054.600)
- Electrician's scissors for cables Ø 0.1 - 3.7 mm (Model No.: 4054.700)
- Combination pliers with insulated handle (Model No.: 4054.800)
- Needle-nose pliers with insulated handle (Model No.: 4054.850)
- Tool bag (Model No.: 4053.000)

Width mm	Height mm	Depth mm	Packs of	Model No.
420	340	190	1 pc(s).	4053.500

Tool bag

Unconfigured

The practical, high-quality shoulder bag may be used either as a tool bag or laptop case.

Design:

- 19 separate compartments for tools
- Cushioned compartment for laptop or tablet
- Document wallet
- Two additional storage pockets inside

Benefits:

- Careful storage
- Shoulder pad for comfortable carrying
- Flexible use

Material:

- Polyester

Width mm	Height mm	Depth mm	Packs of	Model No.
420	340	190	1 pc(s).	4053.000



Screwdrivers



Screwdrivers

insulated

With a long, slender handle and high-performance tip with non-transfer insulation.

Design:

- Isolation protection 1000 V

Benefits:

- Minimal force required, thanks to ergonomically styled handle
- Handle head with anti-roll protection and clear screw labelling
- Black coated blade tip to preserve precision and accuracy of fit
- Handle 30% and insulation up to 50% slimmer than comparable tools
- Optimum interconnection of hand and handle supports higher torques and longer, fatigue-free working

Material:

- Blade: Chrome-molybdenum-vanadium alloy
- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Standards:

- IEC 60 900

Approvals:

- VDE
- TÜV-tested safety

For slot-head screws

Blade tip	Blade (width x thickness) mm	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
SL	3 x 0.5	100	3.5	105	25	1 pc(s).	4052.101
SL	3.5 x 0.6	100	3.5	105	25	1 pc(s).	4052.102
SL	4 x 0.8	100	4	105	25	1 pc(s).	4052.104
SL	5.5 x 1	125	5.5	115	27	1 pc(s).	4052.106
SL	6.5 x 1.2	125	6.5	115	27	1 pc(s).	4052.107

For Pozidriv screws

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
PZ 1	-	80	4.5	105	25	1 pc(s).	4052.121
PZ 2	-	100	6	115	27	1 pc(s).	4052.122

For Phillips-head screws

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
PH 1	-	80	4.5	105	25	1 pc(s).	4052.131
PH 2	-	100	6	115	27	1 pc(s).	4052.132

For plus/minus

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
Z 1	-	80	4.5	105	25	1 pc(s).	4052.141
Z 2	-	100	6	115	27	1 pc(s).	4052.142

Screwdriver set

insulated

Multi-part screwdriver set. With a long, slender handle and high-performance tips with non-transfer insulation.

Design:

- Isolation protection 1000 V

Benefits:

- Minimal force required, thanks to ergonomically styled handle
- Handle head with anti-roll protection and clear screw labelling
- Black coated blade tip to preserve precision and accuracy of fit
- Handle 30% and insulation up to 50% slimmer than comparable tools

Material:

- Blade: Chrome-molybdenum-vanadium alloy
- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Supply includes:

- Set with 5 screwdrivers

Standards:

- IEC 60 900

Approvals:

- VDE
- TÜV-tested safety

Blade tip	Packs of	Model No.
SL 3 x 0.5 mm SL 4 x 0.8 mm SL 5.5 x 1 mm PH 1 PH 2	1 pc(s).	4052.210
SL 3 x 0.5 mm SL 4 x 0.8 mm SL 5.5 x 1 mm PZ 1 PZ 2	1 pc(s).	4052.211
SL 3 x 0.5 mm SL 4 x 0.8 mm PH 1 PH 2 Z 2	1 pc(s).	4052.212



Screwdrivers



Screwdrivers

uninsulated

Ergonomic screwdriver which adapts perfectly to the hand, thereby minimising the force required.

Benefits:

- Handle head with anti-roll protection and clear screw labelling
- Black coated blade tip to preserve precision and accuracy of fit
- Optimum interconnection of hand and handle supports higher torques and longer, fatigue-free working

Material:

- Blade: Chrome-molybdenum-vanadium alloy
- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Approvals:

- TÜV-tested safety

For slot-head screws

Blade tip	Blade (width x thickness) mm	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
SL	2.5 x 0.4	75	2.5	86	25	1 pc(s).	4052.001
SL	3.5 x 0.6	100	3.5	86	25	1 pc(s).	4052.003
SL	4 x 0.8	100	4	94	30	1 pc(s).	4052.004
SL	5.5 x 1	150	5	101	33	1 pc(s).	4052.007
SL	6.5 x 1.2	150	6	106	36	1 pc(s).	4052.011
SL	8 x 1.2	175	7	112	39	1 pc(s).	4052.014
SL	5.5 x 1	25	5	60	21	1 pc(s).	4052.018

For Pozidriv screws

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
PZ 1	–	80	4.5	94	30	1 pc(s).	4052.021
PZ 2	–	100	6	106	36	1 pc(s).	4052.022

For Phillips-head screws

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
PH 1	–	80	4.5	94	30	1 pc(s).	4052.031
PH 2	–	100	6	106	36	1 pc(s).	4052.032
PH 2	–	25	6	60	21	1 pc(s).	4052.038

For multi-tooth screws

Blade tip	Blade (width x thickness)	Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
TX 10	–	100	3.5	86	25	1 pc(s).	4052.053
TX 15	–	100	4	94	30	1 pc(s).	4052.054
TX 20	–	100	5	101	33	1 pc(s).	4052.055
TX 25	–	100	5	106	36	1 pc(s).	4052.056
TX 30	–	115	6	112	39	1 pc(s).	4052.058

Screwdriver set

uninsulated

Multi-part screwdriver set.

Benefits:

- Minimal force required, thanks to ergonomically styled handle
- Handle head with anti-roll protection and clear screw labelling
- Black coated blade tip to preserve precision and accuracy of fit

Material:

- Blade: Chrome-molybdenum-vanadium alloy
- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Approvals:

- TÜV-tested safety

Blade tip	Product-specific scope of supply	Packs of	Model No.
SL 3.5 x 0.6 mm SL 6.5 x 1.2 mm PZ 1 PZ 2 PH 1 PH 2	6-part set	1 pc(s).	4052.200
PH 1 PH 2 TX 15 TX 20 TX 25 TX 30	6-part set	1 pc(s).	4052.201
TX 10 TX 15 TX 20 TX 25 TX 30	5-part set	1 pc(s).	4052.202



Interchangeable screwdriver set

uninsulated

13-piece tool set with comfortable, foldable, lockable handle.

Technical specifications:

- PH 1 - SL 4 x 0.8 mm
- PH 2 - PH 3
- PZ 1 - SL 5 x 0.8 mm
- PZ 2 - SL 6 x 1 mm
- PZ 3 - SL 7 x 1.2 mm
- TX 6 - TX 7
- TX 8 - TX 9
- TX 10 - TX 15
- TX 20 - TX 25
- TX 30 - TX 40
- Hex socket 3 mm - hex socket 4 mm
- Hex socket 5 mm - hex socket 6 mm

Material:

- Blade: Chrome-molybdenum-vanadium alloy
- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

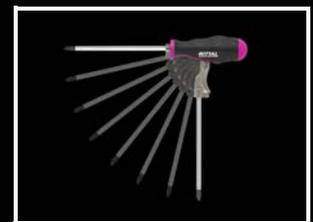
Colour:

- Handle: Anthracite and Rittal Power Pink

Supply includes:

- Combined blade holder: Screwdriver and T handle
- 12 blades each with 2 tips
- Storage box

Blade length mm	Handle length mm	Handle dia. mm	Packs of	Model No.
160	105	39	1 pc(s).	4053.450



Hex wrenches



Hex wrench set

for Allen screws

Hex wrench with optimum, narrow-tolerance hexagonal profiles and precise ballhead geometry. The extra-long design achieves a greater leverage effect.

Benefits:

- Up to 30% more corrosion resistance
- Optimum hardness and elasticity
- Intensive leverage effect
- Special geometry in the critical zone

Technical specifications:

- For hex socket: 1.27 - 1.5 - 2.0 - 2.5 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0 - 5.5 - 6.0 - 7.0 - 8.0 - 9.0 - 10.0 mm

Supply includes:

- 15 hex wrenches
- Storage box

Packs of	Model No.
1 pc(s).	4052.480

Bits and bit holders

Industrial bit for cordless screwdrivers

with long shaft

Precisely manufactured screwdriver with a long shaft for industrial use.

Benefits:

- Maximum hardness and torque values

Technical specifications:

- Tool adaptation E 6.3 (1/4")

Material:

- High-quality special tool steel

For slot-head screws

Blade tip	Blade (width x thickness) mm	Length mm	Blade dia. mm	Packs of	Model No.
SL	3.5 x 0.6	73	6.3	3 pc(s).	4053.002
SL	4 x 0.8	73	6.3	3 pc(s).	4053.003

For Pozidriv screws

Blade tip	Blade (width x thickness)	Length mm	Blade dia. mm	Packs of	Model No.
PZ 1	–	73	6.3	3 pc(s).	4053.011
PZ 2	–	73	6.3	3 pc(s).	4053.012

For Phillips-head screws

Blade tip	Blade (width x thickness)	Length mm	Blade dia. mm	Packs of	Model No.
PH 1	–	73	6.3	3 pc(s).	4053.021
PH 2	–	73	6.3	3 pc(s).	4053.022

For plus/minus

Blade tip	Blade (width x thickness)	Length mm	Blade dia. mm	Packs of	Model No.
Z 1	–	73	6.3	3 pc(s).	4053.031
Z 2	–	73	6.3	3 pc(s).	4053.032

For multi-tooth screws

Blade tip	Blade (width x thickness)	Length mm	Blade dia. mm	Packs of	Model No.
TX 10	–	73	6.3	3 pc(s).	4053.041
TX 15	–	73	6.3	3 pc(s).	4053.042
TX 20	–	73	6.3	3 pc(s).	4053.043
TX 25	–	73	6.3	3 pc(s).	4053.044
TX 27	–	73	6.3	3 pc(s).	4053.045
TX 30	–	73	6.3	3 pc(s).	4053.046
TX 40	–	73	6.3	3 pc(s).	4053.047



Bits and bit holders



Industrial bit set for cordless screwdriver

with long shaft

Precisely manufactured screwdriver with a long shaft for industrial use.

Benefits:

- Robust viewing box
- Secure storage

Technical specifications:

- Tool adaptation E 6.3 (1/4")

Material:

- High-quality special tool steel

Supply includes:

- Set with 6 bits
- Viewing box

Blade tip	Length mm	Packs of	Model No.
SL 3.5 x 0.6 mm SL 4 x 0.8 mm SL 5.5 x 1 mm PH 1 PH 2 PZ 2	73	1 pc(s).	4053.400
TX 10 TX 15 TX 20 TX 25 TX 30 TX 40	73	1 pc(s).	4053.410



Bit set

with bit holder

7-piece bit set with a practical assortment of quality bits with a short shaft and magnetic holder.

Benefits:

- One-handed operation
- Function as auxiliary screwdriver

Technical specifications:

- Tool adaptation C 6.3 (1/4")

Supply includes:

- Set with 6 bits
- Bit holder

Blade tip	Length mm	Packs of	Model No.
TX 25 TX 30 TX 40 PH 1 PH 2 PH 3	25	1 pc(s).	4053.420



Bit holder

with handle, magnetic

Ergonomic, adaptable bit holder with handle.

Benefits:

- Extra-strong magnet for optimum retention force
- Precise concentricity
- Handle for anti-roll protection

Technical specifications:

- Tool adaptation C 6.3 (1/4")
- Tool adaptation E 6.3 (1/4")

Material:

- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Blade length mm	Blade dia. mm	Handle length mm	Handle dia. mm	Packs of	Model No.
100	6.3	101	33	1 pc(s).	4053.300

Bits and bit holders

Bit holder

magnetic

Magnetic holder with hex drive to hold bits securely.

Benefits:

- Extra-strong magnet for optimum retention force
- Precise concentricity

Technical specifications:

- Tool adaptation E 6.3 (1/4")

Material:

- High-quality special tool steel

Blade length mm	Blade dia. mm	Packs of	Model No.
47	6.3	1 pc(s).	4053.310



Crimping pliers



Flex crimping tool

for wire end ferrules

For use with wire end ferrules with no insulating collar to DIN 46228, Part 1 and wire end ferrules with insulating collar to DIN 46228, Part 4.

Benefits:

- Front or side accommodation of the wire end ferrule with a rotatable head
- Minimal effort required with large conductor cross-sections
- Uniformly high quality compression
- Releasable ratchet
- Self-adjusting

Material:

- High-quality special tool steel

Surface finish:

- Coated, black, matt

Colour:

- Handle: Anthracite and Rittal Power Pink



Accessories:

- Wire end ferrules, see page 581

For cross-section mm ²	AWG	Direction of cable entry	Compression	Length mm	Design	Packs of	Model No.
0.14 - 10	26 - 8	front and side	Trapezoid crimp	180	Straight	1 pc(s).	4054.030



Crimping pliers

for wire end ferrules

For use with wire end ferrules with no insulating collar to DIN 46228, Part 1 and wire end ferrules with insulating collar to DIN 46228, Part 4.

Benefits:

- Minimal effort required with large conductor cross-sections
- Uniformly high quality compression
- Releasable ratchet
- Self-adjusting

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink



Accessories:

- Wire end ferrules, see page 581

For cross-section mm ²	AWG	Direction of cable entry	Compression	Length mm	Design	Packs of	Model No.
0.14 - 10	26 - 8	Side	Square crimp	176	Straight	1 pc(s).	4054.002
0.14 - 10	26 - 8	Side	Hexagonal crimp	176	Straight	1 pc(s).	4054.003

Crimping pliers

Crimping pliers

for wire end ferrules

For use with wire end ferrules with no insulating collar to DIN 46228 Part 1 and wire end ferrules with insulating collar to DIN 46228 Part 4.

Benefits:

- Minimal effort required with large conductor cross-sections
- Uniformly high quality compression
- Marked die stations for precise machining of the relevant cross-sections
- Releasable ratchet

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink



Accessories:

- Wire end ferrules, see page 581

For cross-section mm ²	AWG	Direction of cable entry	Compression	Length mm	Design	Packs of	Model No.
0.25 - 6	24 - 10	Side	Trapezoid crimp	198	Angled	1 pc(s).	4054.000
0.5 - 6	22 - 10	Front	Square crimp	198	Angled	1 pc(s).	4054.001
10 - 25	8 - 4	Side	WM crimp	256	Straight	1 pc(s).	4054.004
35 - 50	2 - 1	Side	WM crimp	256	Straight	1 pc(s).	4054.008

Crimping pliers

for crimp tab terminals

For use with non-insulated crimp tab terminals.

Benefits:

- Releasable ratchet
- Marked die stations for precise machining of the relevant cross-sections

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

For cross-section mm ²	AWG	Compression	Length mm	Design	Packs of	Model No.
0.1 - 1.5	26 - 16	B-crimp	198	Angled	1 pc(s).	4054.080
0.5 - 6	22 - 10	B-crimp	256	Straight	1 pc(s).	4054.081



Crimping pliers



Crimping pliers

for ring terminals

For use with non-insulated ring terminals.

Benefits:

- Releasable ratchet
- Optimised lever transmission means that only minimal actuator forces are required, even with large cross-sections

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

For cross-section mm ²	AWG	Compression	Length mm	Design	Packs of	Model No.
0.5 - 2.5	20 - 14	Indent crimp	198	Angled	1 pc(s).	4054.020
0.35 - 6	22 - 10	Indent crimp	198	Angled	1 pc(s).	4054.021
4 - 10	12 - 8	Double-indent crimp	256	Straight	1 pc(s).	4054.023
10 - 25	8 - 4	Indent crimp	256	Straight	1 pc(s).	4054.024

Crimping pliers

Crimping pliers

for ring terminals

For use with insulated ring terminals and connectors.

Benefits:

- Clear allocation of cross-sections, thanks to colour coding on the dies
- Releasable ratchet
- Releases as soon as the required pressure is reached, to prevent underpressing

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

For cross-section mm ²	AWG	Compression	Length mm	Design	Packs of	Model No.
0.75 - 2.5	22 - 14	Oval crimp	198	Angled	1 pc(s).	4054.140
0.75 - 6	22 - 10	Oval crimp	256	Straight	1 pc(s).	4054.141



Wire end ferrules



Wire end ferrules

on a reel

With plastic collar.

Technical specifications:

- Heat-resistant to 105 °C

Material:

- E-Cu, galvanic tin-plated
- Plastic collar: Polypropylene

Note:

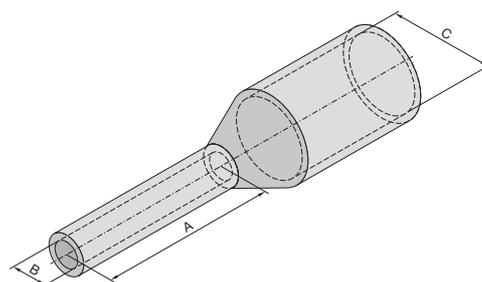
- UL-certified in conjunction with the relevant tools, such as crimping machines.

Standards:

- AEH DIN 46228

Approvals:

- Available on the Internet



A: Length
B: Cross-section
C: Internal diameter

For cross-section 0.5 mm², delivery form: on a reel

Model No.	4051.540	4051.597	4051.548	4050.746	4051.536	4051.598
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC	Crimping machine RC
For cross-section mm ²	0.5	0.5	0.5	0.5	0.5	0.5
AWG	20	20	20	20	20	20
Length mm	8	8	8	8	10	10
Internal diameter mm	2.9	2.6	2.9	2.6	2.9	2.6
Colour	Orange	Orange	White	White	Orange	Orange
DIN colour code	–	–	■	■	–	–
Rittal colour code	■	■	–	–	■	■
Multiple colour codes supported	■	–	■	–	■	–

For cross-section 0.5 - 0.75 mm², delivery form: on a reel

Model No.	4051.544	4051.695	4051.549	4050.747	4051.541	4051.599
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC	Crimping machine RC	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E
For cross-section mm ²	0.5	0.5	0.75	0.75	0.75	0.75
AWG	20	20	18	18	18	18
Length mm	10	10	8	8	8	8
Internal diameter mm	2.9	2.6	3.4	2.8	3.4	2.8
Colour	White	White	Grey	Grey	White	White
DIN colour code	■	■	■	■	–	–
Rittal colour code	–	–	–	–	■	■
Multiple colour codes supported	■	–	■	–	■	–

Wire end ferrules

For cross-section 0.75 mm², delivery form: on a reel

Model No.	4051.545	4051.696	4051.537	4051.600
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC	Crimping machine RC	Crimping machine RC	Crimping machine RC
For cross-section mm ²	0.75	0.75	0.75	0.75
AWG	18	18	18	18
Length mm	10	10	10	10
Internal diameter mm	3.4	2.8	3.4	2.8
Colour	Grey	Grey	White	White
DIN colour code	■	■	-	-
Rittal colour code	-	-	■	■
Multiple colour codes supported	■	-	■	-

For cross-section 1 mm², delivery form: on a reel

Model No.	4051.542	4051.601	4051.550	4050.748	4051.538	4051.602
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC	Crimping machine RC
For cross-section mm ²	1	1	1	1	1	1
AWG	18	18	18	18	18	18
Length mm	8	8	8	8	10	10
Internal diameter mm	3.5	3	3.5	3	3.5	3
Colour	Yellow	Yellow	Red	Red	Yellow	Yellow
DIN colour code	-	-	■	■	-	-
Rittal colour code	■	■	-	-	■	■
Multiple colour codes supported	■	-	■	-	■	-

For cross-section 1 - 1.5 mm², delivery form: on a reel

Model No.	4051.546	4051.697	4051.543	4051.603	4051.551	4050.749
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC	Crimping machine RC	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC Crimping machine R8	Crimping machine RC Crimping machine R8 Crimping machine R8 E
For cross-section mm ²	1	1	1.5	1.5	1.5	1.5
AWG	18	18	16	16	16	16
Length mm	10	10	8	8	8	8
Internal diameter mm	3.5	3	4	3.5	4	3.5
Colour	Red	Red	Red	Red	Black	Black
DIN colour code	■	■	-	-	■	■
Rittal colour code	-	-	■	■	-	-
Multiple colour codes supported	■	-	■	-	■	-

Wire end ferrules

For cross-section 1.5 mm², delivery form: on a reel

Model No.	4051.539	4051.604	4051.547	4051.698
Packs of	4000 pc(s).	5000 pc(s).	4000 pc(s).	5000 pc(s).
For	Crimping machine RC	Crimping machine RC	Crimping machine RC	Crimping machine RC
For cross-section mm ²	1.5	1.5	1.5	1.5
AWG	16	16	16	16
Length mm	10	10	10	10
Internal diameter mm	4	3.5	4	3.5
Colour	Red	Red	Black	Black
DIN colour code	-	-	■	■
Rittal colour code	■	■	-	-
Multiple colour codes supported	■	-	■	-

For cross-section 2.5 mm², delivery form: on a reel

Model No.	4050.750	4051.605
Packs of	3000 pc(s).	3000 pc(s).
For	Crimping machine RC Crimping machine R8 Crimping machine R8 E	Crimping machine RC
For cross-section mm ²	2.5	2.5
AWG	14	14
Length mm	8	10
Internal diameter mm	4.2	4.2
Colour	Blue	Blue
DIN colour code	■	■
Rittal colour code	■	■
Multiple colour codes supported	■	■

Wire end ferrules

Wire end ferrules

loose

With plastic collar.

Technical specifications:

- Heat-resistant to 105 °C

Material:

- E-Cu, galvanic tin-plated
- Plastic collar: Polypropylene

Note:

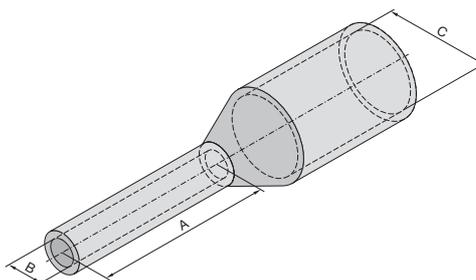
- UL-certified in conjunction with the relevant tools, such as crimping machines.

Standards:

- AEH DIN 46228

Approvals:

- Available on the Internet



A: Length
B: Cross-section
C: Internal diameter



For cross-section 0.14 - 0.5 mm², delivery form: loose

Model No.	4050.752	4050.754	4050.757	4050.760	4050.730	4050.742	4050.761
Packs of	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).
For	manual wire processing	manual wire processing	manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	manual wire processing
For cross-section mm ²	0.14	0.25	0.34	0.5	0.5	0.5	0.5
AWG	26	24	22	20	20	20	20
Length mm	8	8	8	8	8	8	10
Internal diameter mm	1.5	1.8	2	2.6	2.6	2.9	2.6
Colour	Grey	Light blue	Turquoise	Orange	White	White	Orange
DIN colour code	-	-	-	-	■	■	-
Rittal colour code	■	■	■	■	-	-	■

For cross-section 0.75 - 1 mm², delivery form: loose

Model No.	4050.731	4050.743	4050.764	4050.766	4050.769	4050.732	4050.744
Packs of	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).
For	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing
For cross-section mm ²	0.75	0.75	0.75	0.75	1	1	1
AWG	18	18	18	18	18	18	18
Length mm	8	8	8	10	8	8	8
Internal diameter mm	2.8	3.4	2.8	2.8	3	3	3.5
Colour	Grey	Grey	White	White	Yellow	Red	Red
DIN colour code	■	■	-	-	-	■	■
Rittal colour code	-	-	■	■	■	-	-

Wire end ferrules

For cross-section 1 - 2.5 mm², delivery form: loose

Model No.	4050.770	4050.773	4050.733	4050.745	4050.774	4050.734	4050.779
Packs of	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).	500 pc(s).
For	manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	Crimping machine L8 manual wire processing	manual wire processing	Crimping machine L8 manual wire processing	manual wire processing
For cross-section mm ²	1	1.5	1.5	1.5	1.5	2.5	2.5
AWG	18	16	16	16	16	14	14
Length mm	10	8	8	8	10	8	10
Internal diameter mm	3	3.5	3.5	4	3.5	4.2	4.2
Colour	Yellow	Red	Black	Black	Red	Blue	Blue
DIN colour code	-	-	■	■	-	■	-
Rittal colour code	■	■	-	-	■	■	■

For cross-section 4 - 6 mm², delivery form: loose

Model No.	4050.782	4050.735	4050.783	4050.736	4050.785
Packs of	500 pc(s).	500 pc(s).	500 pc(s).	100 pc(s).	100 pc(s).
For	manual wire processing				
For cross-section mm ²	4	4	4	6	6
AWG	12	12	12	10	10
Length mm	8	10	12	12	12
Internal diameter mm	4.8	4.8	4.8	6.3	6.3
Colour	Grey	Grey	Grey	Yellow	Black
DIN colour code	-	-	■	■	-
Rittal colour code	■	■	-	-	■

For cross-section 0.5 - 1 mm², delivery form: loose (10 packs of 100)

Model No.	4051.638	4050.737	4051.641	4050.738	4051.644	4050.739
Packs of	1000 pc(s).					
For	manual wire processing					
For cross-section mm ²	0.5	0.5	0.75	0.75	1	1
AWG	20	20	18	18	18	18
Length mm	10	12	10	12	10	12
Internal diameter mm	2.6	2.6	2.8	2.8	3	3
Colour	White	White	Grey	Grey	Red	Red
DIN colour code	■	■	■	■	■	■
Rittal colour code	-	-	-	-	-	-

For cross-section 1.5 - 2.5 mm², delivery form: loose (10 packs of 100)

Model No.	4051.647	4050.740	4051.525	4050.741
Packs of	1000 pc(s).	1000 pc(s).	1000 pc(s).	1000 pc(s).
For	manual wire processing	manual wire processing	manual wire processing	manual wire processing
For cross-section mm ²	1.5	1.5	2.5	2.5
AWG	16	16	14	14
Length mm	10	12	10	12
Internal diameter mm	3.5	3.5	4.2	4.2
Colour	Black	Black	Blue	Blue
DIN colour code	■	■	■	■
Rittal colour code	-	-	-	-

Insulation stripping tools

Wire stripper

For stripping cables and conductors. Self-adjusting, with ergonomically styled handle, replaceable insulation stripping blade.

Benefits:

- Flexible end stop for the insulation stripping length
- Practical integrated wire cutter
- Automatic adjustment mechanism for a wide range of insulations and conductor diameters
- Dies compatible with all types of pliers, may be replaced in a few actions
- Two-component handle with anti-slip soft zone

Colour:

- Handle: Anthracite and Rittal Power Pink



Accessories:

- Spare blades can be found on the Internet

For cross-section mm ²	AWG	Length mm	Design	Note	Packs of	Model No.
0.02 - 10	34 - 8	191	-	-	1 pc(s).	4054.300
0.02 - 10	34 - 8	168	Angled	-	1 pc(s).	4054.315
0.1 - 4	28 - 12	191	-	Also suitable for rubber and silicone insulation	1 pc(s).	4054.310
4 - 16	12 - 5	191	-	-	1 pc(s).	4054.305

Stripping tool

for cables Ø 2.5 - 11 mm

For stripping installation cables and wires.

Colour:

- Handle: Anthracite and Rittal Power Pink

For cable diameters mm	Length mm	Packs of	Model No.
2.5 - 11	90.5	1 pc(s).	4054.400



Accessories:

- Spare blades can be found on the Internet

Stripping tool

for cables Ø 8 - 13 mm

For stripping single- and multi-wire signal, pilot and fibreglass cables.

Colour:

- Handle: Anthracite and Rittal Power Pink

For cable diameters mm	Length mm	Packs of	Model No.
8 - 13	125	1 pc(s).	4054.405



Insulation stripping tools



Stripping tool

for cables Ø 4.5 - 40 mm

For stripping cables. Vertically hinged blade for creating round, longitudinal and spiral cuts.

Colour:

- Handle: Anthracite and Rittal Power Pink

For cable diameters mm	Length mm	Packs of	Model No.
4.5 - 40	167	1 pc(s).	4054.410



Accessories:

- Spare blades can be found on the Internet

Cutting tools

Side cutter

For copper and aluminium conductors.

Benefits:

- Guarantees long-term stable cutting performance and a clean cut
- Ergonomically styled handles for fatigue-free, non-slip working

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

Standards:

- Isolation protection 1000 V
- VDE

For cable diameters mm	Length mm	Design	Packs of	Model No.
0.2 - 11	160	Straight	1 pc(s).	4054.600



Electronic side cutter

With pointed head, 21° angled blades and small chamfer.

Benefits:

- Even, smooth-running opening with opening spring
- Ergonomically styled handles
- Box-joint for permanent stability and optimum force progression

Material:

- High-quality special tool steel

Surface finish:

- Polished, oiled

Colour:

- Handle: Anthracite and Rittal Power Pink

Length mm	Packs of	Model No.
115	1 pc(s).	4054.750



Cable cutter

For copper and aluminium conductors.

Benefits:

- Ergonomically styled handles for fatigue-free, non-slip working

Material:

- High-quality special tool steel

Colour:

- Handle: Anthracite and Rittal Power Pink

Standards:

- Isolation protection 1000 V
- VDE

For cross-section mm ²	For cable diameters mm	Length mm	Design	Packs of	Model No.
0.5 - 35	12	160	Straight	1 pc(s).	4054.650
0.5 - 50	18	180	Angled	1 pc(s).	4054.660



Cutting tools



Electrician's scissors

For cutting copper, aluminium, Kevlar and plastic.

Benefits:

- High cutting performance thanks to micro-serration in the cutting zone
- Ergonomically styled handles
- Two-component handle with anti-slip soft zone
- Adjustable screw joint

Material:

- High-quality special tool steel

Surface finish:

- Brushed

Colour:

- Handle: Anthracite and Rittal Power Pink

For cable diameters mm	Length mm	Packs of	Model No.
0.1 - 3.7	160	1 pc(s).	4054.700



Cross member cutter

To create openings by cutting the cross members in compartment side panels and compartment dividers for VX enclosures and for fuse-switch-disconnector enclosures.

Benefits:

- Cutting of materials without deformation
- Clean edge cuts, no reworking of the cut section required
- Easy to use
- Ergonomically styled handles for fatigue-free, non-slip working

Material:

- Tool body: Special tool steel, rolled, oil-hardened

Colour:

- Handle: Anthracite and Rittal Power Pink

Supply includes:

- Cross member cutter including swarf deflector

To fit Model No.	Length mm	Design	Packs of	Model No.
9683.006/9683.008/ 9683.016/9683.018/ 9683.036/9683.038/ 9680.005/9680.025/ 9680.207/9680.227/ 9683.406/9683.408/ 9683.426/9683.428/ 9683.444/9683.446/ 9683.448/9683.464/ 9683.466/9683.468/ 9683.484/9683.486/ 9683.488	280	Straight	1 pc(s).	4054.870

Combination pliers

Length mm	Packs of	Model No.
180	1 pc(s).	4054.800

With serrated gripping surface and integral ring spanner M8 to M10.

Benefits:

- Ergonomically styled handles for fatigue-free, non-slip working
- Favourable transmission ratios for good holding and cutting performance
- Minimal force required

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

Standards:

- Isolation protection 1000 V
- VDE



Needle-nose pliers

Length mm	Packs of	Model No.
200	1 pc(s).	4054.850

With serrated gripping surface.

Benefits:

- Ergonomically styled handles for fatigue-free, non-slip working

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink

Standards:

- Isolation protection 1000 V
- VDE



Electronic needle-nose pliers

Length mm	Packs of	Model No.
120	1 pc(s).	4054.860

With smooth gripping surface.

Benefits:

- Ergonomically styled handles for fatigue-free, non-slip working
- Even, smooth-running opening with opening spring

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

- Handle: Anthracite and Rittal Power Pink



Pliers



Slip-joint pliers

Length mm	Packs of	Model No.
260	1 pc(s).	4054.900

For width across flats 10 - 36 mm.

Benefits:

- Ergonomically styled handles for fatigue-free, non-slip working
- Smooth cheeks avoid the usual damage caused by wrenches and pipe wrenches on screws/nuts
- QuickSnap ratcheting for fast adjustment to the workpiece with no push-button
- Robust box-joint

Material:

- High-quality special tool steel

Surface finish:

- Matt, plated

Colour:

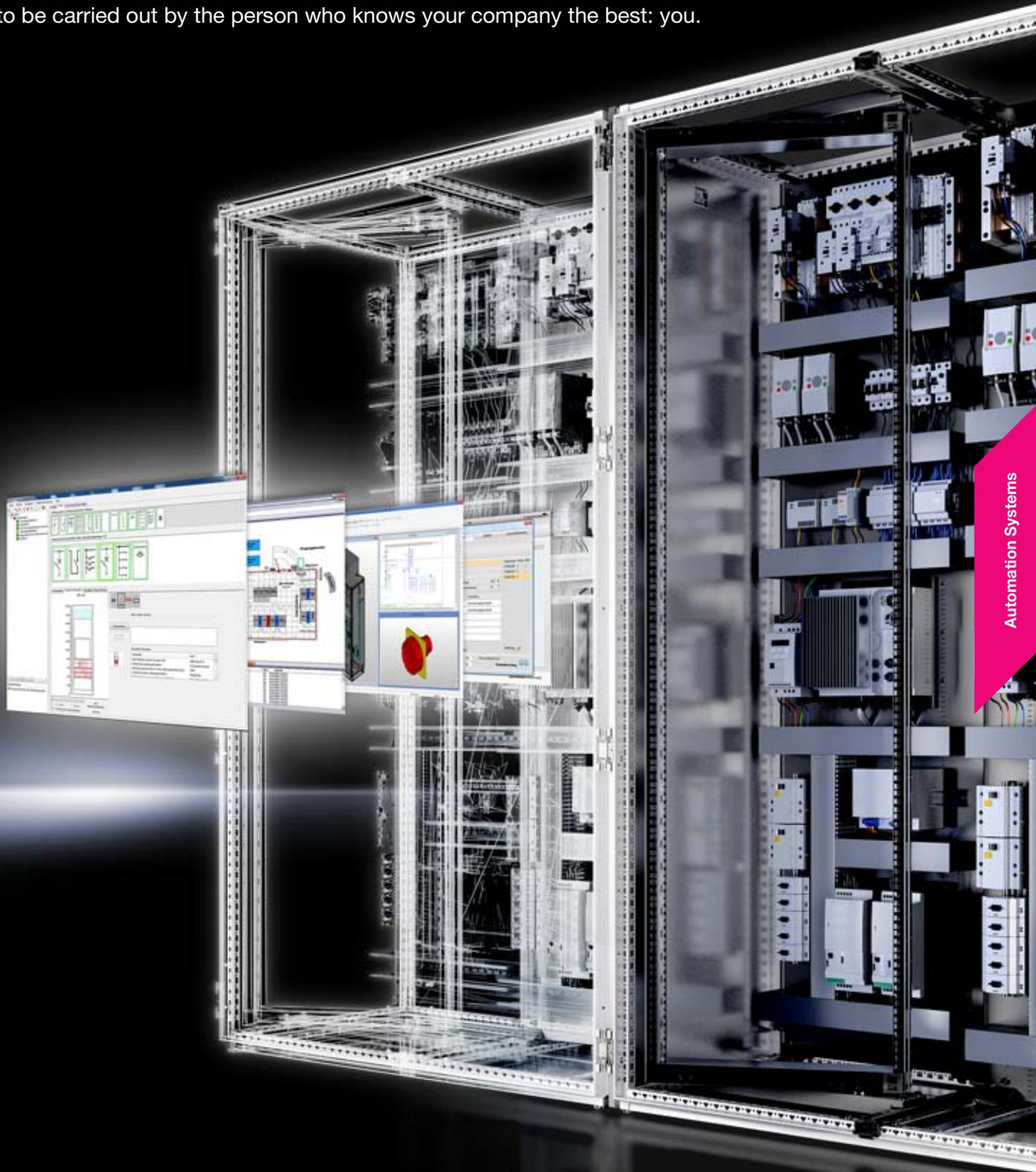
- Handle: Anthracite and Rittal Power Pink

Maximum data quality

Streamline your workflow with software-based engineering

This enclosure is available in duplicate – real and digital.

The maximum data quality of the enclosures creates greater flexibility with configuration, manufacturing and assembly. What's more, the digital twin allows the planning, ordering, processing and much more to be carried out by the person who knows your company the best: you.



Mechanical tools



Deburring blade

Universal deburrer, for deburring holes and edges.

Design:

- Steel blade may be clamped in an axial or radial direction as required
- Steel blade brushed on both sides

Benefits:

- Blade automatically assumes the optimum position
- Length of blade support is adjustable
- Easy to use
- Effortless deburring
- Ergonomically styled handle

Material:

- Handle core: Hard plastic
- Handle body: Elastic, highly flexible plastic
- Blade holder: Steel
- Blade: Hardened steel blade, with PVD TiN (titanium nitride) coating

Colour:

- Handle: Black and red

Supply includes:

- Handle
- Blade holder
- Steel blade

Handle length mm	Handle dia. mm	Packs of	Model No.
110	28	1 pc(s).	4050.722



Accessories:

- Steel blade, see page 590



Steel blade

for deburring blade

Spare blade for deburrer. Rotating 360° blades for deburring.

Design:

- Steel blade brushed on both sides

Material:

- Hardened steel blade, with PVD TiN (titanium nitride) coating

To fit Model No.	Blade length mm	Blade dia. mm	Packs of	Model No.
4050.722	23	3	10 pc(s).	4050.723



Also required:

- Deburring blade, see page 590



Multitool

for AX, VX

Multifunctional tool. Ideal for handling and mounting AX enclosures and VX doors.

Functions:

- Cutting of packaging (tapes and foil)
- Enclosure key (double-bit)
- Installation and dismantling of hinge pins with AX enclosures
- Temporary door stay for AX enclosures
- Safe installation and removal of VX doors
- Magnet for securing drawings and attaching to enclosure surfaces
- Bottle opener function

Technical specifications:

- Load capacity max. 40 kg (lift door)

Material:

- Door lift function: Stainless steel
- Double-bit: Die-cast zinc
- Mounting aid for hinge pins: Die-cast zinc
- Door stay: Die-cast zinc
- Blade: Stainless steel blade
- Handle: Plastic

Colour:

- Handle: Anthracite and Rittal Power Pink

Packs of	Model No.
1 pc(s).	4052.000

Lifting aid for mounting plate for AX

Lifting tool to support the assembly process of mounting plates for AX enclosures. Allows easy location and positioning of the mounting plate without risk of injury.

Benefits:

- Easy location of populated mounting plates
- Tool-free mounting on the mounting plate
- Loop function for crane use
- No risk of fingers or hands becoming trapped

Technical specifications:

- Load capacity max. 40 kg per cable

Material:

- Lifting rope and loop: Steel
- Handle: Plastic
- Mounting plate adaptor: Die-cast zinc

Colour:

- Handle: Anthracite and Rittal Power pink

Supply includes:

- 1 set $\hat{=}$ 4 lifting aids

Packs of	Model No.
1 pc(s).	4050.140



Drilling template for AX

For precise positioning and support when drilling extra holes in AX enclosures. Designed for steel and stainless steel enclosures.

Applications:

- Universal bracket 2373.000
- Swing frame installation kit 2034.010
- Door stay 1485.100
- 180° hinges 2449.010

Benefits:

- Protects the edge of the enclosure
- No measurement or marking out required
- Avoids scratches and damage to the enclosure surface

Technical specifications:

- For holes \varnothing 4.5 / 5.5 / 6.5 mm

Material:

- Hard plastic

Colour:

- RAL 9005

Width mm	Height mm	Depth mm	Packs of	Model No.
96	30	45	1 pc(s).	4052.500



Hole punching tools

Hydraulic punches



Manual hydraulic punch

For punching round, square and rectangular cut-outs.

Benefits:

- Extend tool life with a built-in overpressure valve

Punching capacity:

- Round punch up to Ø 82 mm
- Square punch up to 68 x 68 mm
- Rectangular punch up to 46 x 86 mm
- Punching force 75 kN
- Max. operating pressure 680 bar/9850 psi

Material:

- Aluminium

Supply includes:

- Manual hydraulic punch
- Hydraulic screw Ø 19 mm
- Hydraulic screw Ø 9.5 / 19 mm
- HSS pilot drill Ø 11 mm
- Spacer sleeve set (3-part)
- Plastic case

Design	Packs of	Model No.
Straight	1 pc(s).	4055.000
With 90° angled and 360° rotating cylinder head	1 pc(s).	4055.010
Flexible, with hydraulic hose and separate cylinder	1 pc(s).	4055.020

Electric hydraulic punch

For punching round, square and rectangular cut-outs.

Benefits:

- Extend tool life with a built-in overpressure valve
- High-performance drive motor with ergonomically styled handle
- Slide in the battery packs from two sides to balance the weight

Punching capacity:

- Round punch up to Ø 82 mm
- Square punch up to 68 x 68 mm
- Punching force 75 kN
- Max. operating pressure 680 bar/9850 psi

Material:

- Aluminium

Supply includes:

- Electric hydraulic punch with 2 NiMH batteries, 18 V
- Charging device 18 - 28 V
- Hydraulic screw Ø 9.5 / 19 mm
- Hydraulic screw Ø 19 mm
- Spacer sleeve set (3-part)
- HSS pilot drill Ø 11 mm
- Plastic case

Packs of	Model No.
1 pc(s).	4055.041

Hole punching tools

Hydraulic punches

Manual hydraulic punch set, M16 - M63

Manual hydraulic punch in a practical set with hole punches for sheet steel. Maximum machinable material thickness 2 or 3 mm.

Benefits:

- Extend tool life with a built-in overpressure valve

Supply includes:

- Manual hydraulic punch, straight
- 7 splitter hole punches, triple splitting
- Hydraulic screw Ø 19 mm
- Hydraulic screw Ø 9.5 / 19 mm
- HSS pilot drill Ø 10 mm
- Spacer sleeve set (3-part)
- Plastic case

For threads	Ø punch mm	Packs of	Model No.
M16	16.2	1 pc(s).	4055.070
M20	20.4		
M25	25.4		
M32	32.5		
M40	40.5		
M50	50.5		
M63	63.5		



Manual hydraulic punch set, M16 - M40

Manual hydraulic punch in a practical set with hole punches for sheet steel. Maximum machinable material thickness 2 or 3 mm.

Design:

- With 90° angled and 360° rotating cylinder head

Benefits:

- Extend tool life with a built-in overpressure valve

Supply includes:

- Manual hydraulic punch
- 5 splitter hole punches, triple splitting
- Hydraulic screw Ø 19 mm
- Hydraulic screw Ø 9.5 / 19 mm
- HSS pilot drill Ø 10 mm
- Spacer sleeve set (3-part)
- Plastic case

For threads	Ø punch mm	Packs of	Model No.
M16	16.2	1 pc(s).	4055.080
M20	20.4		
M25	25.4		
M32	32.5		
M40	40.5		



Manual hydraulic punch set, PG 9 - PG 48

Manual hydraulic punch in a practical set with hole punches for sheet steel. Maximum machinable material thickness 2 or 3 mm.

Design:

- With 90° angled and 360° rotating cylinder head

Benefits:

- Extend tool life with a built-in overpressure valve

Supply includes:

- Manual hydraulic punch
- 9 splitter hole punches, triple splitting
- Hydraulic screw Ø 19 mm
- Hydraulic screw Ø 9.5 / 19 mm
- HSS pilot drill Ø 10 mm
- Spacer sleeve set (3-part)
- Plastic case

For PG	Ø punch mm	Packs of	Model No.
9	15.2	1 pc(s).	4055.085
11	18.6		
13	20.4		
16	22.5		
21	28.3		
29	37		
36	47		
42	54		
48	60		



Hole punching tools

Hole punches



Hole punch, round

for sheet steel

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With 3 cutting points

Supply includes:

- Female dies
- Male dies
- Tension screw without ball bearing

Note:

- When operating with wrenches, tension screws with ball bearings should be used
- Other sizes, see splitter hole punch, round, stainless steel



Accessories:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603

For threads	For PG	Ø punch mm	Tension screw (Ø x L) mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Ø mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
M12	7	12.7	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.212
-	9	15.2	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.215
M16	-	16.2	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.216
-	11	18.6	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.218
M20	13	20.4	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.220
-	16	22.5	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.222
M25	-	25.4	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.225
-	21	28.3	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.228
M32	-	32.5	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.232
-	29	37	19 x 55	4055.633	19	4055.663	3	1 pc(s).	4055.237
M40	-	40.5	19 x 55	4055.633	19	4055.663	3	1 pc(s).	4055.240
-	36	47	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.247
M50	-	50.5	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.250
-	42	54	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.254
-	48	60	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.260
M63	-	63.5	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.263

Hole punching tools

Hole punches

Hole punch set, metric

for sheet steel

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With 3 cutting points

Supply includes:

- 5 female dies
- 5 male dies
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used

Accessories:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603

For threads	Ø punch mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
M16	16.2	4055.631	4055.661	2	1 pc(s).	4055.480
M20	20.4	4055.631	4055.661	2		
M25	25.4	4055.631	4055.661	2		
M32	32.5	4055.631	4055.661	2		
M40	40.5	4055.633	4055.663	3		

Hole punch set, PG

for sheet steel

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With 3 cutting points

Supply includes:

- 5 female dies
- 5 male dies
- 2 tension screws with ball bearing Ø 9.5 x 50 mm
- HSS pilot drill Ø 11 mm
- 1 tube of lubricant paste
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used

Accessories:

- Hydraulic tension screw, see page 603

For PG	Ø punch mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
9	15.2	4055.661	2	1 pc(s).	4055.481
11	18.6				
13	20.4				
16	22.5				
21	28.3				



Hole punching tools

Hole punches



Splitter hole punch, round

for sheet steel, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- Female dies
- Male dies

Note:

- When operating with wrenches, tension screws with ball bearings should be used
- Other sizes, see splitter hole punch, round, stainless steel



Accessories:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603

For threads	For PG	Ø punch mm	Tension screw (Ø x L) mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Ø mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
M12	-	12.5	6 x 40	4055.630	6/19	4055.660	1.5	1 pc(s).	4055.512
-	9	15.2	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.515
M16	-	16.2	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.516
-	11	18.6	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.518
M20	13	20.4	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.520
-	16	22.5	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.522
M25	-	25.4	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.525
-	21	28.3	9.5 x 50	4055.631	9.5/19	4055.661	2	1 pc(s).	4055.528
M32	-	32.5	19 x 55	4055.633	19	4055.663	3	1 pc(s).	4055.532
-	29	37	19 x 55	4055.633	19	4055.663	3	1 pc(s).	4055.537
M40	-	40.5	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.540
-	36	47	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.547
M50	-	50.5	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.550
-	42	54	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.554
-	48	60	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.560
M63	-	63.5	19 x 75	4055.634	19	4055.663	3	1 pc(s).	4055.563

Splitter hole punch set, M16 to M40

for sheet steel, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- 5 female dies
- 5 male dies
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used

Accessories:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603

For threads	Ø punch mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
M16	16.2	4055.631	4055.661	2	1 pc(s).	4055.580
M20	20.4	4055.631	4055.661	2		
M25	25.4	4055.631	4055.661	2		
M32	32.5	4055.633	4055.663	3		
M40	40.5	4055.634	4055.663	3		

Splitter hole punch set, M12 to M40

for sheet steel, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- 6 female dies
- 6 male dies
- Tension screw with ball bearing Ø 6 x 40 mm
- Tension screw with ball bearing Ø 9.5 x 50 mm
- Tension screw with ball bearing Ø 19 x 55 mm
- HSS pilot drill Ø 10 mm
- 1 can of lubricant paste
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used

Accessories:

- Hydraulic tension screw, see page 603

For threads	Ø punch mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
M12	12.5	4055.660	1.5	1 pc(s).	4055.581
M16	16.2	4055.661	2		
M20	20.4	4055.661	2		
M25	25.4	4055.661	2		
M32	32.5	4055.663	3		
M40	40.5	4055.663	3		



Hole punching tools

Hole punches



Splitter hole punch set, PG 9 to PG 21

for sheet steel, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- 6 female dies
- 6 male dies
- 2 tension screws with ball bearing Ø 9.5 x 50 mm
- HSS pilot drill Ø 10 mm
- 1 tube of lubricant paste
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used



Accessories:

- Hydraulic tension screw, see page 603

For PG	Ø punch mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
9 11 13 16 21	15.2 18.6 20.4 22.5 28.3 30.5	4055.661	2	1 pc(s).	4055.582

Hole punching tools

Hole punches

Splitter hole punch, round

for stainless steel, round, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- Female dies
- Male dies

Note:

- When operating with wrenches, tension screws with ball bearings should be used



Also required:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603
- Hydraulic tension screw for higher loads, see page 603



For threads	For PG	Ø punch mm	Tension screw (Ø x L) mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Ø mm	Hydraulic tension screw Model No.	Maximum machinable material thickness, stainless steel mm	Packs of	Model No.
-	9	15.2	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.115
M16	-	16.2	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.116
-	11	18.6	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.118
M20	13	20.4	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.120
-	16	22.5	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.122
M25	-	25.4	11.1 x 60	4055.632	11.1/19	4055.665	2	1 pc(s).	4055.125
-	21	28.3	19 x 55	4055.633	19	4055.663	2.5	1 pc(s).	4055.128
-	-	30.5	19 x 55	4055.633	19	4055.663	2.5	1 pc(s).	4055.130
M32	-	32.5	19 x 55	4055.633	19	4055.663	2.5	1 pc(s).	4055.132
-	-	34.6	19 x 55	4055.633	19	4055.663	2.5	1 pc(s).	4055.134
-	29	37	19 x 55	4055.633	19	4055.663	2.5	1 pc(s).	4055.137
M40	-	40.5	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.140
-	-	43.2	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.143
-	36	47	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.147
-	-	49.6	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.149
M50	-	50.5	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.150
-	42	54	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.154
-	48	60	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.160
-	-	61.5	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.161
M63	-	63.5	19 x 75	4055.634	19	4055.663	2.5	1 pc(s).	4055.163

Hole punching tools

Hole punches



Splitter hole punch set, metric

for stainless steel, round, with triple splitting

For punching round cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Design:

- With triple splitting

Supply includes:

- 5 female dies
- 5 male dies
- Plastic case

Note:

- When operating with wrenches, tension screws with ball bearings should be used



Also required:

- Tension screw, see page 602
- Hydraulic tension screw, see page 603
- Hydraulic tension screw for higher loads, see page 603

For threads	Ø punch mm	Tension screw with ball bearing Model No.	Hydraulic tension screw Model No.	Maximum machinable material thickness, stainless steel mm	Packs of	Model No.
M16	16.2	4055.632	4055.665	2	1 pc(s).	4055.180
M20	20.4	4055.632	4055.665	2		
M25	25.4	4055.632	4055.665	2		
M32	32.5	4055.633	4055.663	2.5		
M40	40.5	4055.634	4055.663	2.5		



Hole punch, square

for sheet steel

For punching square cut-outs. The hole punch is operated with a hydraulic punch.

Benefits:

- With side ejector for the waste
- No jamming of the die

Supply includes:

- Female dies
- Male dies
- Tension bolts
- Lock nut
- Plastic case

□ punch mm	Maximum machinable material thickness, sheet steel mm	Product-specific scope of supply	Operation, manual	Operation, hydraulic	Packs of	Model No.
22.2 x 22.2	2	Pressure nut with ball bearing Adaptor for hydraulics	■	■	1 pc(s).	4055.322
45.5 x 45.5	3	-	-	■	1 pc(s).	4055.345
46 x 46	3	-	-	■	1 pc(s).	4055.346
50.8 x 50.8	3	-	-	■	1 pc(s).	4055.350
68 x 68	3	-	-	■	1 pc(s).	4055.368
92 x 92	3	Spacer sleeve Special tension bolt	-	■	1 pc(s).	4055.392

Hole punching tools

Hole punches

Hole punch, rectangular

for sheet steel

For punching rectangular cut-outs. The hole punch is operated with a wrench or hydraulic punch.

Benefits:

- With side ejector for the waste
- No jamming of the die

Supply includes:

- Female dies
- Male dies
- Tension bolts
- Lock nut
- Plastic case

□ punch mm	Maximum machinable material thickness, sheet steel mm	Product-specific scope of supply	Operation, manual	Operation, hydraulic	Packs of	Model No.
22 x 30	2	Pressure nut with ball bearing Adaptor for hydraulics	■	■	1 pc(s).	4055.400
22 x 42	2	Pressure nut with ball bearing Adaptor for hydraulics	■	■	1 pc(s).	4055.401
45 x 92	2	-	-	■	1 pc(s).	4055.402
46 x 92	2	-	-	■	1 pc(s).	4055.403

Hole punch, special contour

for sheet steel

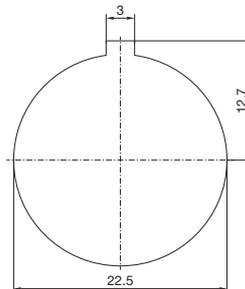
For punching cut-outs with a special contour. The hole punch is operated with a wrench or hydraulic punch.

Benefits:

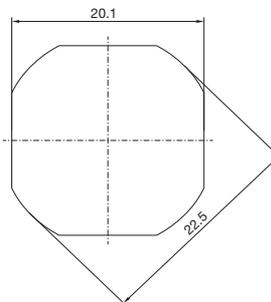
- With side ejector for the waste
- No jamming of the die

Supply includes:

- Female dies
- Male dies
- Tension bolts
- Lock nut
- Pressure nut with ball bearing
- Adaptor for hydraulics
- Plastic case



4055.440



4055.441

Design	Ø punch mm	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
With 3 mm lug	22.5	2	1 pc(s).	4055.440
Flattened to 20.1 mm on 4 sides	22.5	2	1 pc(s).	4055.441



Hole punching tools

Hole punches



Hole punch, heavy connectors

for sheet steel

For punching rectangular cut-outs for connectors. The hole punch is operated with a hydraulic punch.

Benefits:

- With side ejector for the waste
- No jamming of the die
- When the die and stamp are compressed, the mounting holes for connectors are marked on the metal sheet between them

Supply includes:

- Female dies
- Male dies
- Tension bolts
- Lock nut

□ punch mm	No. of poles	Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
36 x 52	6-pole	2	1 pc(s).	4055.460
36 x 65	10-pole	2	1 pc(s).	4055.461
36 x 86	16-pole	2	1 pc(s).	4055.463
36 x 112	24-pole	2	1 pc(s).	4055.465



Tension screw

Accessories for hole punches. Required as a connecting part between the die and stamp.

Note:

- For operation with wrench

Tension screw (Ø x L) mm	Packs of	Model No.
9.5 x 40	1 pc(s).	4055.600
9.5 x 50	1 pc(s).	4055.601
19 x 55	1 pc(s).	4055.602
19 x 75	1 pc(s).	4055.603



Tension screw

with ball bearing

Accessories for hole punches. Required as a connecting part between the die and stamp.

Note:

- For operation with wrench

Tension screw (Ø x L) mm	Packs of	Model No.
6 x 40	1 pc(s).	4055.630
9.5 x 50	1 pc(s).	4055.631
11.1 x 60	1 pc(s).	4055.632
19 x 55	1 pc(s).	4055.633
19 x 75	1 pc(s).	4055.634



Hole punching tools

Hole punches

Hydraulic tension screw

Accessories for hole punches. Required as a connecting part between the die and stamp.

Note:

- For operation via hydraulic punch

Hydraulic tension screw Ø mm	Product-specific scope of supply	Packs of	Model No.
6/19	Adaptor for hydraulics	1 pc(s).	4055.660
9.5/19	Adaptor for hydraulics	1 pc(s).	4055.661
11.1/19	Adaptor for hydraulics	1 pc(s).	4055.662
19	-	1 pc(s).	4055.663



Hydraulic tension screw for higher loads

Accessories for hole punches. Required as a connecting part between the die and stamp.

Benefits:

- Hydraulic tension screw made from high-alloy tool steel for higher loads

Note:

- For operation via hydraulic punch

Hydraulic tension screw Ø mm	Packs of	Model No.
9.5/19	1 pc(s).	4055.664
11.1/19	1 pc(s).	4055.665



Notching pliers

Punches slots quickly and easily. Saves the time-consuming process of filing the grooves for anti-twist protection of push buttons, switches and instruments. Slots in sizes 3.2 mm and 4.8 mm can be created.

Benefits:

- Long service life
- Male and female die made from hardened tool steel
- Easy punching with large leverage

Material:

- Handles: Plastic-coated

Maximum machinable material thickness, sheet steel mm	Packs of	Model No.
2	1 pc(s).	4055.690



Wiring duct cutter MC 125



For manual cutting of wiring ducts, with adjustable length end stop for the machined material. Anodised contact surface with laser-engraved calibration in millimetres and inches. Integral finger guard ensures safe machining. Intended for mounting on a workbench.

Benefits:

- Enables inexpensive manual cutting of wiring ducts
- Easier for cutting wiring ducts to length compared to sawing by hand

Machinable material:

- Plastic

Model No.	Packs of	4050.435	Page
Footprint size (W x H x D) mm		1332 x 798 x 405	
Max. machinable width of cable duct mm		125	
Max. machinable wall thickness of cable duct mm		2.5	
Max. insertion height mm		28	
Weight kg		15.0	
Accessories			
Spare blade MC 125	1 pc(s).	4050.436	

Support rail cutter MC3



Support rails Page 996 **Mounting angles** Page 996

Manual profile cutter for cutting C rails 30/15 and support rails TS 35/7.5 and TS 35/15 to length, burr-free. The desired rail length is set precisely and reproducibly using the ruler (mm/inch) and the adjustable end stop. For mounting on the workbench.

- Easier to cut mounting angles and support rails to the correct length than sawing by hand
- Burr-free cutting to length with eccentric lever, no major force required
- Low-maintenance and with a long service life

Benefits:

- Inexpensive manual cutting of mounting angles and support rails

Machinable material:

- Sheet steel
- Aluminium
- Copper

Model No.	Packs of	4050.437	Page
Maximum machinable material thickness mm		1.5	
Footprint size (W x H x D) mm		1343 x 1162 x 312	
Weight kg		14.0	
Accessories			
Support rail TS 35/15		see page	997
Support rail TS 35/7.5		see page	997
C rails 30/15		see page	996

Assembly frames and LT 1000 storage and transport trolley



We have the perfect ergonomic solution for you, particularly when it comes to the automation and rationalisation of every stage of the enclosure machining, assembly, wiring and testing process. Our assembly frames are mobile, tiltable and (depending on the version) height-adjustable for machining mounting plates and enclosures. All types offer simple, variable fixing of mounting plates using quick-release fasteners, are independent from the mains power, and take up minimal space when not in use. For easier handling of enclosure panels, we also offer the storage and transport trolley LT 1000.

- Tilt-adjustable and optionally height-adjustable for ergonomic, effective, time-saving construction, wiring and testing of mounting plates or complete enclosures

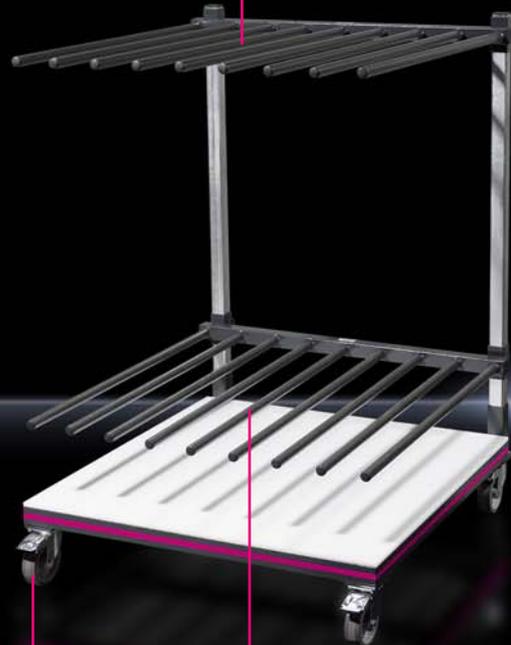
- Numerous adaptation options available:
 - Widening to a maximum of 1900 mm
 - Wire routing
 - Wire reel holder

More options, see brochure "Rittal Automation Systems – Automate your panel building and switchgear manufacturing", from page 58

- Individually adjustable thanks to height-adjustable supports



- Four castors including total lock function ensure simple handling



- Eight wide fan sections for effortless storage and transportation of enclosure panels
- User-friendly transportation through the workshop on castors

Assembly frame



Accessories Page 608

The assembly frames are mobile, tiltable and (depending on the version) height-adjustable frames for assembling plates and enclosures.

Benefits:

- For ergonomic, back-friendly working
- Individually positionable in the workshop, as it is independent from the power network
- Minimum space requirements during non-use
- Simple handling due to four castors including total lock function
- Variable fixing of mounting plates with a quick-release fastener

Technical specifications:

- Tilt adjustment approx. 0 – 80°

Supply includes:

- Assembly frame
 - 1 clamping unit pack, bottom
 - 1 clamping unit pack, top
- Please observe the product-specific scope of supply.

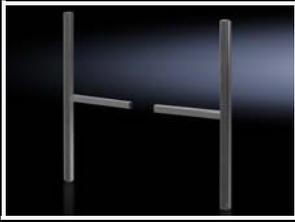
Note:

- With the assembly frame extension, a maximum machining area of 1900 x 1900 mm can be achieved

Model No.	Packs of	4050.150	4050.200	4050.300	Page
Design		150 MN (manually tilt-adjustable)	200 EN (electrically tilt-adjustable)	300 ENH (electrically tilt- and height-adjustable)	
Dimensions (W x D) mm		1400 x 1250	1400 x 1250	1400 x 1250	
Dimensions of support surface (W x H) min. mm		1110 x 1230	1110 x 1230	1110 x 1230	
Dimensions of support surface (W x H) max. mm		1110 x 1900	1110 x 1900	1110 x 1900	
Load capacity kg		150	200	300	
Working height (min./max.) cm		100 / 100	90 / 90	80 / 110	
Weight kg		138.0	148.0	250.0	
Product-specific scope of supply					
Charger unit		-	■	■	
Battery		-	■	■	
Accessories					
Extension	1 pc(s).	4050.210	4050.210	4050.210	608
Enclosure set	1 pc(s).	4050.211	4050.211	4050.211	608
Wire routing	1 pc(s).	4050.212	4050.212	4050.212	608
Clamping unit		see page	see page	see page	608
Wire reel holder	1 pc(s).	4050.216	4050.216	4050.216	609
Screw adaptor	1 pc(s).	4050.218	4050.218	4050.218	609
Set of brackets	1 pc(s).	4050.221	4050.221	4050.221	610
Roller conveyor	1 pc(s).	-	-	4050.220	609
Spare battery	1 pc(s).	-	4050.217	4050.217	609
Voltage supply	1 pc(s).	-	4050.219	4050.219	610
Connection adaptor	1 pc(s).	-	4050.222	4050.222	610

Accessories

for assembly frame



Extension

for assembly frame

For widening assembly frames 150 MN, 200 EN, 300 ENH to a maximum width of 1900 mm.

Supply includes:

- Extension
- Assembly parts

To fit Model No.	Packs of	Model No.
4050.150/4050.200/ 4050.300/4051.100	1 pc(s).	4050.210



Enclosure set

for assembly frame

For secure attachment of an enclosure such as AX to assembly frame 150 MN, 200 EN, 300 ENH.

Supply includes:

- Packs of 2

To fit Model No.	Packs of	Model No.
4050.150/ 4050.200/ 4050.300	1 pc(s).	4050.211



Wire routing

for assembly frame

For user-friendly handling of wires on assembly frame 150 MN, 200 EN, 300 ENH.

To fit Model No.	Packs of	Model No.
4050.150/ 4050.200/ 4050.300	1 pc(s).	4050.212



Clamping unit

for assembly frame

For secure attachment of a mounting plate onto the assembly frames 150 MN, 200 EN and 300 ENH.



To fit Model No.	For	Design	Product-specific scope of supply	Packs of	Model No.
4050.150/ 4050.200/ 4050.300	Mounting plate VX/SE	Top	1 clamping unit pack, top	2 pc(s).	4050.213
4050.150/ 4050.200/ 4050.300	Mounting plate VX/SE	Bottom	1 clamping unit pack, bottom	2 pc(s).	4050.214

Accessories

for assembly frame

Wire reel holder

for assembly frame

For adapting wire reels or drums on assembly frames 150 MN, 200 EN and 300 ENH.

To fit Model No.	Packs of	Model No.
4050.150/ 4050.200/ 4050.300/ 4051.100	1 pc(s).	4050.216



Spare battery

for assembly frame

Battery to fit electrical tilt/height adjuster for assembly frame 200 EN, 300 ENH.

To fit Model No.	Packs of	Model No.
4050.200/ 4050.300	1 pc(s).	4050.217



Screw adaptor

for spindle hoist

For operating the assembly frame spindle drive using a cordless screwdriver. To fit assembly frame 150 MN.

To fit Model No.	Packs of	Model No.
4050.150	1 pc(s).	4050.218

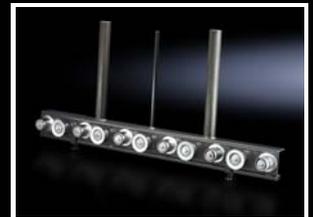


Roller conveyor

for assembly frame

For inserting the mounting plate sideways into the enclosure. To fit assembly frame 300 ENH.

To fit Model No.	Packs of	Model No.
4050.300	1 pc(s).	4050.220



Accessories

for assembly frame



Set of brackets

for assembly frame

For secure attachment of a mounting plate onto the assembly frames 150 MN, 200 EN, 300 ENH.

Supply includes:

- 4 cover caps
- 12 handles
- 2 holders
- 16 washers
- 12 sliding blocks

To fit Model No.	For	Packs of	Model No.
4050.150/ 4050.200/ 4050.300	Mounting plate AX	1 pc(s).	4050.221



Voltage supply

for assembly frame

Charging station power pack for assembly frame 200 EN and 300 ENH.

To fit Model No.	Suitable for rated operating voltage	Packs of	Model No.
4050.200/ 4050.300	110 V	1 pc(s).	4050.219



Also required:

- Connection adaptor, see page 610



Connection adaptor

for voltage supply

Adaptor connector for the power supply to assembly frames 200 EN and 300 ENH.

Design:

- USA, Canada, Central and South America, Japan

To fit Model No.	Packs of	Model No.
4050.200/4050.300	1 pc(s).	4050.222



Also required:

- Voltage supply, see page 610

Storage and transport trolley LT 1000



The LT 1000 warehouse and transport trolley is used for storage and order picking, and ensures easy handling of enclosure panels such as mounting plates, enclosure doors, side panels and rear panels.

Design:

- 2 fan supports each with 8 slots, distance between tubes 100 mm

Benefits:

- Individually adjustable thanks to height-adjustable supports

- Effortless storage and transportation of enclosure panels
- User-friendly transportation on industrial castors
- Fan support, powder-coated, protects enclosure panels such as doors, side panels etc. from scratches and damage

Material:

- Base plate: Plastic
- Fan support: Steel, powder-coated

Model No.	Packs of	4050.000	Page
Transport dimensions (W x H x D) mm		1000 x 1500 x 1000	
Load capacity kg		500	
Weight kg		122.0	

Functional trolley



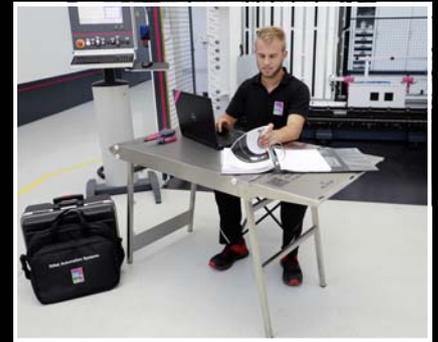
The functional trolley is a veritable multi-talent: Whether for transporting materials and tools to the installation site or for commissioning, the functional trolley is perfectly suited for assembly technicians and service personnel. The sophisticated fold-out concept is the ideal solution when you are on the road, and its compact dimensions mean that it can be conveniently transported by car.



Folds together for space-saving transportation



Handcart function



Integral folding chair, e.g. for programming work during commissioning

- Made from V2A stainless steel for robustness and durability

- Computer mouse-friendly surface



- Converts from a transport function to a practical desk by simply unfolding

Functional trolley



Whether for transporting essential materials and tools to the installation site or for commissioning, the functional trolley's fold-out system is the ideal solution for assembly technicians and service personnel.

Benefits:

- Table surface suitable for computer mouse
- Converts from its transport function to a practical desk by simply unfolding
- High level of resilience and robustness

Material:

- Functional trolley: Stainless steel 1.4301 (AISI 304)
- Work surface: Plastic coating
- Seat surface: Woven polyester fabric, coated in PVC

Load capacity:

- Handcart (max. 20 kg)
- Table (max. 30 kg)
- Folding chair (max. 100 kg)

Supply includes:

- Functional trolley
- Folding chair

Model No.	Packs of	4050.130	Page
Transport dimensions (W x H x D) mm		610 x 1000 x 85	
Handcart dimensions (W x H x D) mm		300 x 610 x 1000	
Table dimensions (W x H x D) mm		1290 x 780 x 610	
Weight kg		20.0	

Smart Lifter enclosure lifting and transportation device

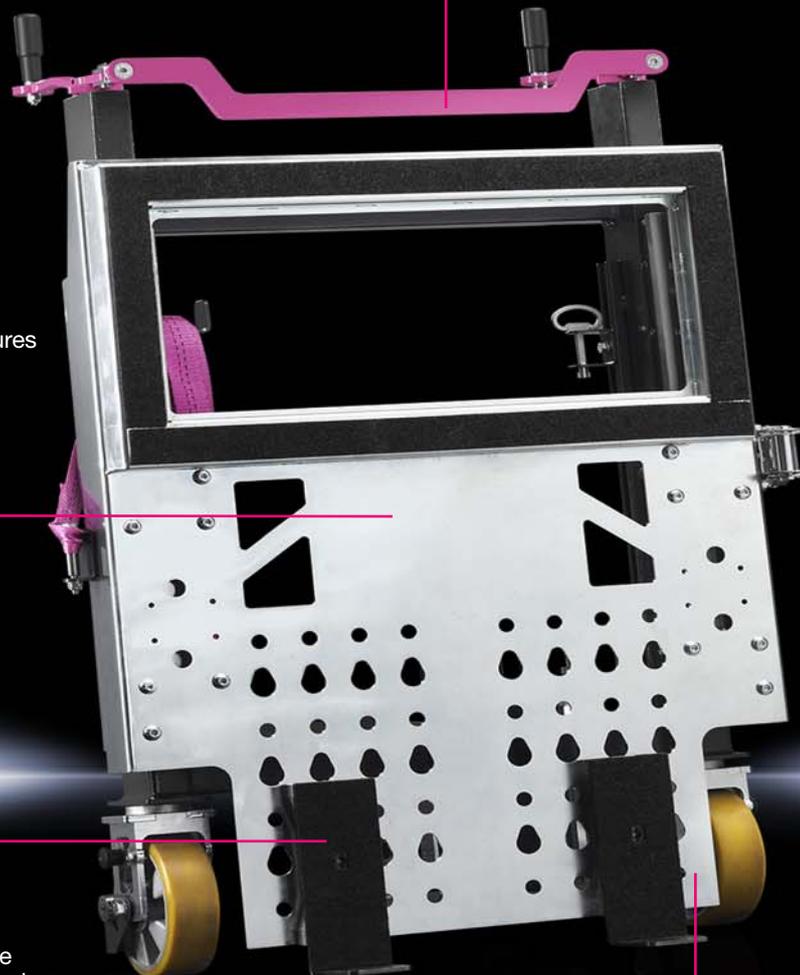
Enclosure logistics made easy: the Smart Lifter allows populated and bayed enclosures up to a maximum weight of 1.8 t and a length of 4.8 m to be safely and easily transported. The height adjuster with torque drive can lift to a height of 230 mm, allowing operators to fit the base/plinth and lower onto pallets or square timbers. By using the torque cranks, the entire system can be gently lowered into place.

- The steering system with heavy-duty castors allows smooth relocation of the enclosure suite, and even rotation on the spot

- Lift function with torque crank handle allows the bayed enclosures to be gently raised and lowered

- Simple, safe relocation of the support points with a lock system makes the Smart Lifter a universal lifting tool for different enclosure depths

- Height adjustment with a lift of 230 mm allows easier fitting of the base/plinth to enclosures





The Smart Lifter is your flexible, mobile transport system for switchgear manufacturers, logistics specialists and service teams.

The Smart Lifter is distinguished by its versatility and industrial design with built-in torque crank handle to protect employees from incorrect operation.



The belt and double-bit key are stored outside of the work zone



The torque crank handle allows bayed enclosures to be raised and lowered with minimal force



Steering system for easy manoeuvring



Simple base/plinth mounting with lift function up to 230 mm



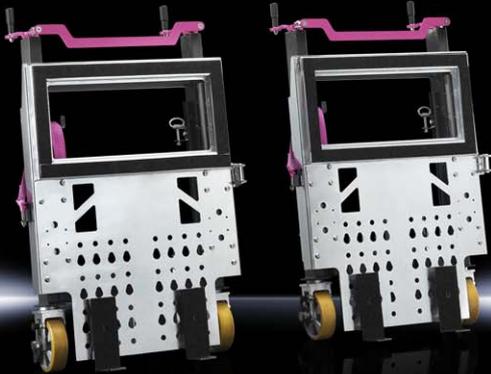
The pick-up forks for different enclosure depths are easily adjusted



Transportation of enclosures in various lengths, depths and weights

Automation Systems

Smart Lifter



Lifting and transport device for enclosures and enclosure suites up to 4.80 m length.

Benefits:

- Supports simple mounting of base/plinths beneath enclosures
- Easy transportation of bayed enclosures in the workshop or at the installation site
- Flexible use for enclosures of different depths, thanks to adjustable forks
- Ergonomic working (lifting and lowering) with a torque crank

Functions:

- Transportation of bayed enclosures up to a length of 4.80 m
- Lifting of bayed enclosures up to a height of 230 mm and a weight of 1800 kg

Technical specifications:

- Dimensions per trolley (W x H x D): 750 x 1100 x 400 mm

Supply includes:

- 2 transport trolleys

Model No.		4050.005	Page
Load capacity kg		1800	
Weight kg		70.0	

Boost efficiency, cut costs

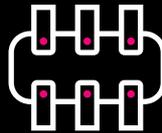
The digital twin engineered using Eplan software tools links together all downstream processes in panel building and switchgear manufacturing 4.0.



Cutting



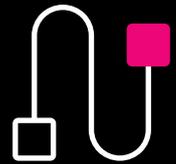
Panel Modification



Terminal Strip Assembly



Wire Fabrication



Wiring



Smart Wiring [↗](#)

The browser-based EPLAN Smart Wiring solution supplies all wiring data in a 100% digital form and visualises your wiring in 3D. Users benefit from a significant reduction in errors and substantial time savings. A digital twin of the enclosure also contains all the information needed for wiring enclosures. See page 32.

Wire Station WS 540 wiring workstation

For flexible, efficient wire assembly and wiring work in the workshop. The wiring workstation is the ideal interface between the fully automated production of wires with the Rittal Wire Terminal and wiring work on mounting plates or in the enclosure. The Wire Station WS 540 is an ergonomic process optimiser for use with all wiring-related activities.

- Universal accessories tailored to the application, such as component supports for semi-automatic machines
- Optional workstation add-ons help to boost flexibility and efficiency in essential manual process stages

EPLAN Smart Wiring: Wiring made easy

- Using data from the Digital Twin
- Wire lists with filter function
- Visualisation of cable routes
- Wiring plan revision management

- Stocking and processing of pre-produced wires from the Rittal Wire Terminal
- Complete project handling with variable arrangement of the wire magazines directly at the workstation



Wire management, stocking and production

- Automatic cutting with the Rittal C8+ length-cutting machine accelerates and streamlines the manual wiring process



Wire Terminal WT fully automated wire processing machine
Fully automated wire processing with patented ordering system, see page 656



Rittal assembly frames
Flexible, straightforward handling in the workshop. Ergonomically adjustable assembly frames for building and wiring enclosures and mounting plates, see page 606



With the complete modular system surrounding the WS 540, your workstation can be functionally adapted to suit individual panel building and switchgear manufacturing requirements. Assistance is at hand for process-optimised project handling with EPLAN Smart Wiring, the Rittal length-cutting, insulation-stripping and crimping machines, and label printers. Another modular element to boost efficiency in modern panel building and switchgear manufacturing.



Optional monitor support



Integral scale and electrically adjustable operating height



Optional tool/drinks holder



Optional Mini-PC holder



Optional wire routing for up to 8 different wires



Integral socket strip



Integral shadow board to fit Rittal tools such as screwdrivers, side cutters, crimping tools etc., see page 566

To fit the following products:

- 4052.058, 4052.141
- 4052.101, 4052.142
- 4052.102, 4054.002
- 4052.104, 4054.004
- 4052.106, 4054.141
- 4052.107, 4054.300
- 4052.121, 4054.410
- 4052.122, 4054.600
- 4052.131, 4054.750
- 4052.132, 4054.850

Wire Station WS 540



Accessories for Wire Station WS 540 Page 621 **Length-cutting machine C8+** Page 632 **Crimping machines** From page 634

Mobile wiring workstation, height-adjustable, for flexible use in the workshop. For ergonomic, fatigue-free wire processing work.

Benefits:

- Electronically adjustable desk for the optimum working height, adjustable from 710 – 1250 mm
- Multiplex worktop, washable and scratch-resistant
- Ideal solution in conjunction with the length-cutting and crimping machines plus pre-assembled wires with the Wire Terminal

- Integral scale for quick manual measurements
- Prepared to accommodate a monitor for wire processing with EPLAN Smart Wiring
- Optionally expandable with shelves for wire boxes, wire reels and holders for tools and small parts
- For flexible use in the workshop thanks to rubberised wheels
- Drawer with shadow board prepared for tools

Supply includes:

- Wiring table with electrical height adjuster
- Connection cable, 7 m
- 7-way socket strip, with rocker switch

Note:

- The vertical mounting braces, Model No. 4051.106, are required for accessories such as storage box holders, magazine supports etc.

Model No.	Packs of	4051.100	Page
Dimensions (W x H x D) mm		900 x 1350 x 781	
Working height (min./max.) mm		710 / 1205	
Input voltage		230 V AC, 50 Hz	
Weight kg		95.0	
Accessories			
Shelf	2 pc(s).	4051.101	621
Component support, left	1 pc(s).	4051.102	621
Component support, right	1 pc(s).	4051.103	622
Monitor attachment	1 pc(s).	4051.104	622
LED work light	1 pc(s).	4051.105	623
Mounting braces, vertical	1 pc(s).	4051.106	623
Storage box holder	1 pc(s).	4051.107	624
Adaptor bracket	1 pc(s).	4051.108	624
Waste bin	1 pc(s).	4051.115	624
Socket strip	1 pc(s).	4051.114	625
Magazine support	1 pc(s).	4051.111	625
Wire routing for mounting braces, vertical	1 pc(s).	4051.120	625
Wire routing for component support, left	1 pc(s).	4051.121	626
Wire pack holder		see page	626
Wire coil holder		see page	627
Wire reel holder	1 pc(s).	4050.216	609
Tool holder, round	1 pc(s).	4051.113	627
Stripping machine console	1 pc(s).	4051.112	628
Universal utility shelf	1 pc(s).	4051.109	628
Mini-PC holder	1 pc(s).	4051.110	628

Accessories

for Wire Station WS 540

Shelf

for WS 540

Shelf set for mounting below the desktop. Different shelf depths provide ample knee and leg room for seated working at the workstation.

Benefits:

- For optimum use of the space beneath the desktop without restricting legroom
- Tool-free mounting of the shelves by simply hanging in place

Technical specifications:

- Top shelf (W x D): 510 x 335 mm
- Bottom shelf (W x D): 510 x 200 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- 2 shelves

Packs of	Model No.
2 pc(s).	4051.101



Component support, left

for WS 540

Component support unit to fit length-cutting machine C8+ and an additional shelf to accommodate most common label printer brands. Mounted on the left of the WS 540 Wire Station.

Benefits:

- Additional shelf for universal use
- Compact external mounting
- Flexibly adjustable in the width and height

Technical specifications:

- Component support (W x H x D): 360 x 335 x 20 mm, including height adjustment of 480 mm
- Support arm (W x H): 500 x 700 mm
- Shelf (W x H x D): 417 x 267 x 20 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Component support for the C8+ length-cutting machine
- Semi-automated machine support arm, left
- Universal shelf for printer/label printer
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.102



Accessories

for Wire Station WS 540



Component support, right for WS 540

Component support unit to fit crimping machine RC or R8 E, for mounting on the right of the Wire Station WS 540.

Benefits:

- Compact external mounting
- Flexibly adjustable in the width and height

Technical specifications:

- Component support (W x H x D): 318 x 313 x 20 mm, including conduit for height adjustment of 480 mm
- Support arm (W x H): 500 x 700 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Component support for crimping machines
- Semi-automated machine support arm, right
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.103



Monitor attachment for WS 540

For mounting all commercially available monitors up to screen diagonals of 32" with Vesa 75/100.

Benefits:

- Stable monitor attachment
- Vertically hinged
- Height-adjustable

Technical specifications:

- Height-adjustable up to 285 mm
- Extendable up to 430 mm
- Swivel range left/right with full extension 90°
- Swivel range of ball head 35° all-round
- Vesa 75/100

Material:

- Aluminium/sheet steel

Supply includes:

- Monitor attachment
- Assembly parts

Approvals:

- GS-tested

Load capacity max. kg	Packs of	Model No.
10	1 pc(s).	4051.104

Accessories

for Wire Station WS 540

LED work light

for WS 540

For attaching to the table top, with clamping device.

Benefits:

- Bright, glare- and flicker-free lighting, homogeneous and shadow-free
- Selectable colour temperature between warm white, neutral white and daylight white promotes concentration and reduces symptoms of fatigue
- Excellent colour fidelity and high contrast
- Aluminium spring arm with 3D head joint, swivelling and lockable for free positioning of the light source

Technical specifications:

- Spring arm: Length 970 mm
- Colour reproduction: 94 – 98 Ra
- Transmission angle: 100°

Material:

- Light housing: Aluminium
- Glare control: Macrolon

Protection category IP to IEC 60 529:

- IP 40

Protection class:

- III (SELV)

Supply includes:

- LED work light
- Assembly parts

Width mm	545
Height mm	90
Depth mm	35
Luminous flux lm	2930
Light	84 SMD LEDs
Rated operating voltage V, ~, Hz	110 - 240, 1~, 50/60
Power consumption W	26
Service life h	≥ 60000
Operating temperature	-10 °C...+40 °C
Length of connection cable m	3
Connection options	Plug-in power supply (CEE 7/16) with AC adaptor
Packs of	1 pc(s).
Model No.	4051.105



Mounting braces, vertical

for WS 540

For optional attachment of accessories such as wire pack holders, open-fronted storage boxes and shelves.

Benefits:

- Individual and functional configuration with component supports, storage box holders, consoles, wire pack holders, etc.
- Simple screw-fastening of accessories
- Individual height adjustment of the accessories with a rail system

Technical specifications:

- Dimensions (W x H x D): 85 x 1350 x 50 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Packs of	Model No.
1 pc(s).	4051.106



Accessories

for Wire Station WS 540



Storage box holder

for WS 540

For fastening to the vertical mounting braces of the WS 540 and for storing small parts and accessories.

Technical specifications:

- Dimensions of storage box holder (W x H x D): 110 x 350 x 15 mm
- Dimensions of open-fronted storage box (W x H x D): 100 x 85 x 160 mm

Material:

- Support: Sheet steel
- Open-fronted storage boxes: Plastic

Colour:

- Support: RAL 7016
- Open-fronted storage boxes: Yellow

Supply includes:

- Storage box holder
- 3 open-fronted storage boxes
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.107



Also required:

- Mounting braces, vertical, see page 623



Adaptor bracket

for WS 540

For individual configuration and enlargement of the WS 540. The adaptor bracket is required for mounting additional vertical mounting braces and supports a range of width settings from 50 – 400 mm.

Technical specifications:

- Side dimensions (W x H): 483 x 383 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Packs of	Model No.
1 pc(s).	4051.108



Also required:

- Mounting braces, vertical, see page 623



Waste bin

for WS 540

For waste disposal directly at the workstation.

Benefits:

- Front mounting without impairing legroom

Technical specifications:

- Dimensions (W x H x D): 150 x 290 x 320 mm
- Capacity: 12 litres

Material:

- Plastic

Colour:

- Dark grey

Supply includes:

- Waste bin
- Bracket
- Assembly parts



Packs of	Model No.
1 pc(s).	4051.115

Accessories

for Wire Station WS 540

Socket strip

for WS 540

For mounting on the worktop of the WS 540.

Design:

- 5-way, with rocker switch (green)

Benefits:

- Ergonomic access thanks to the 45° angle on the worktop

Material:

- Extrusion: Aluminium
- Socket inserts: Plastic

Supply includes:

- Socket strip, connection cable and earthing contact plug
- Assembly parts

Electrical connection V, Hz	Rated current A	Packs of	Model No.
230, 50	16	1 pc(s).	4051.114



Magazine support

for WS 540

To accommodate up to 4 wire rail magazines with pre-assembled wires from the Wire Terminal WT.

Benefits:

- For universal use on any mounting brace, vertical

Technical specifications:

- Dimensions (W x H x D): 330 x 200 x 35 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

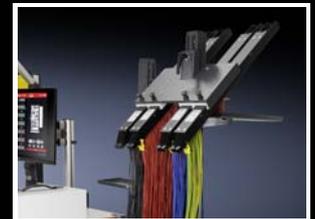
- Magazine support
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.111



Also required:

- Mounting braces, vertical, see page 623



Wire routing for mounting braces, vertical

for WS 540

Targeted wire routing for up to 8 different wires is supported. Mounting on the vertical mounting braces.

Benefits:

- Individually height-adjustable on the mounting brace
- Optimum running characteristics of the wires

Technical specifications:

- Dimensions (W x H x D): 130 x 263 x 322 mm
- Depth adjustment directly at the wire guide up to 100 mm
- Wire routing from 0.5 – 2.5 mm² supported

Material:

- Holder: Sheet steel
- Reel and wire guide: Plastic

Packs of	Model No.
1 pc(s).	4051.120



Also required:

- Mounting braces, vertical, see page 623



Accessories

for Wire Station WS 540



Wire routing for component support, left

for WS 540

Targeted wire routing for up to 8 different wires is supported. For mounting on the component support, left.

Benefits:

- Optimum wire routing to the C8+ length-cutting centre
- Optimum running characteristics of the wires

Technical specifications:

- Dimensions (W x H x D): 129 x 190 x 169 mm
- Wire routing from 0.5 – 2.5 mm² supported

Material:

- Holder: Sheet steel
- Reel and wire guide: Plastic

Packs of	Model No.
1 pc(s).	4051.121



Also required:

- Component support, left, see page 621



Wire pack holder

Shelf for wire packs, to fit assembly frames and WS 540. Attached to the Wire Station on the vertical mounting braces on the left or right.

Technical specifications:

- Dimensions of wire pack holder (W x H x D): 207 x 105 x 207 mm
- Storage space to fit wire packs up to a maximum size of 207 x 207 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Wire pack holder
- Assembly parts

To fit Model No.	Design	Packs of	Model No.
4051.100/ 4050.150/ 4050.200/ 4050.300	left	1 pc(s).	4051.116
4051.100/ 4050.150/ 4050.200/ 4050.300	right	1 pc(s).	4051.117



Also required:

- Mounting braces, vertical, see page 623



Accessories

for Wire Station WS 540

Wire coil holder

Wire coil shelf to fit assembly frames and WS 540. Attached to the Wire Station on the vertical mounting braces on the left or right.

Technical specifications:

- Storage space (W x H x D): 375 x 20 x 475 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

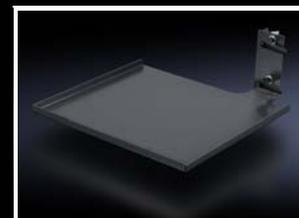
- Wire coil holder
- Assembly parts

To fit Model No.	Design	Packs of	Model No.
4051.100/ 4050.150/ 4050.200/ 4050.300	left	1 pc(s).	4051.118
4051.100/ 4050.150/ 4050.200/ 4050.300	right	1 pc(s).	4051.119



Also required:

- Mounting braces, vertical, see page 623



Tool holder, round

for WS 540

For safe storage of hand-held devices or drinks. The tool holder is secured to the desktop.

Applications:

- Holder for hand tools such as cordless screwdrivers, hot-air dryers or beverage bottles
- For hand-held tools up to 80 mm in diameter

Technical specifications:

- Dimensions (W x H x D): 140 x 87 x 200 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Tool holder, round
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.113



Accessories

for Wire Station WS 540



Stripping machine console for WS 540

For positioning the S22 stripping machine on the WS 540. The console may be positioned on either the left or right.

Technical specifications:

- Console area (W x D): 278 x 178 mm
- Height-adjustable up to 480 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Packs of	Model No.
1 pc(s).	4051.112

 **Assembly instruction:**

- The stripping machine console is also suitable for component supports 4051.102 and 4051.103



Universal utility shelf for WS 540

Universal utility shelf for mounting on the vertical mounting braces of the WS 540. Storage for tools or small parts.

Technical specifications:

- Dimensions (W x H x D): 130 x 15 x 190 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Universal utility shelf
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.109

 **Also required:**

- Mounting braces, vertical, see page 623



Mini-PC holder for WS 540

For secure attachment of a mini-PC to the WS 540. The holder is mounted underneath the workbench on the left.

Technical specifications:

- Dimensions (W x H x D): 70 x 235 x 200 mm
- Individually adjustable up to 60 mm

Material:

- Sheet steel

Colour:

- RAL 7016

Supply includes:

- Mini-PC holder
- Assembly parts

Packs of	Model No.
1 pc(s).	4051.110

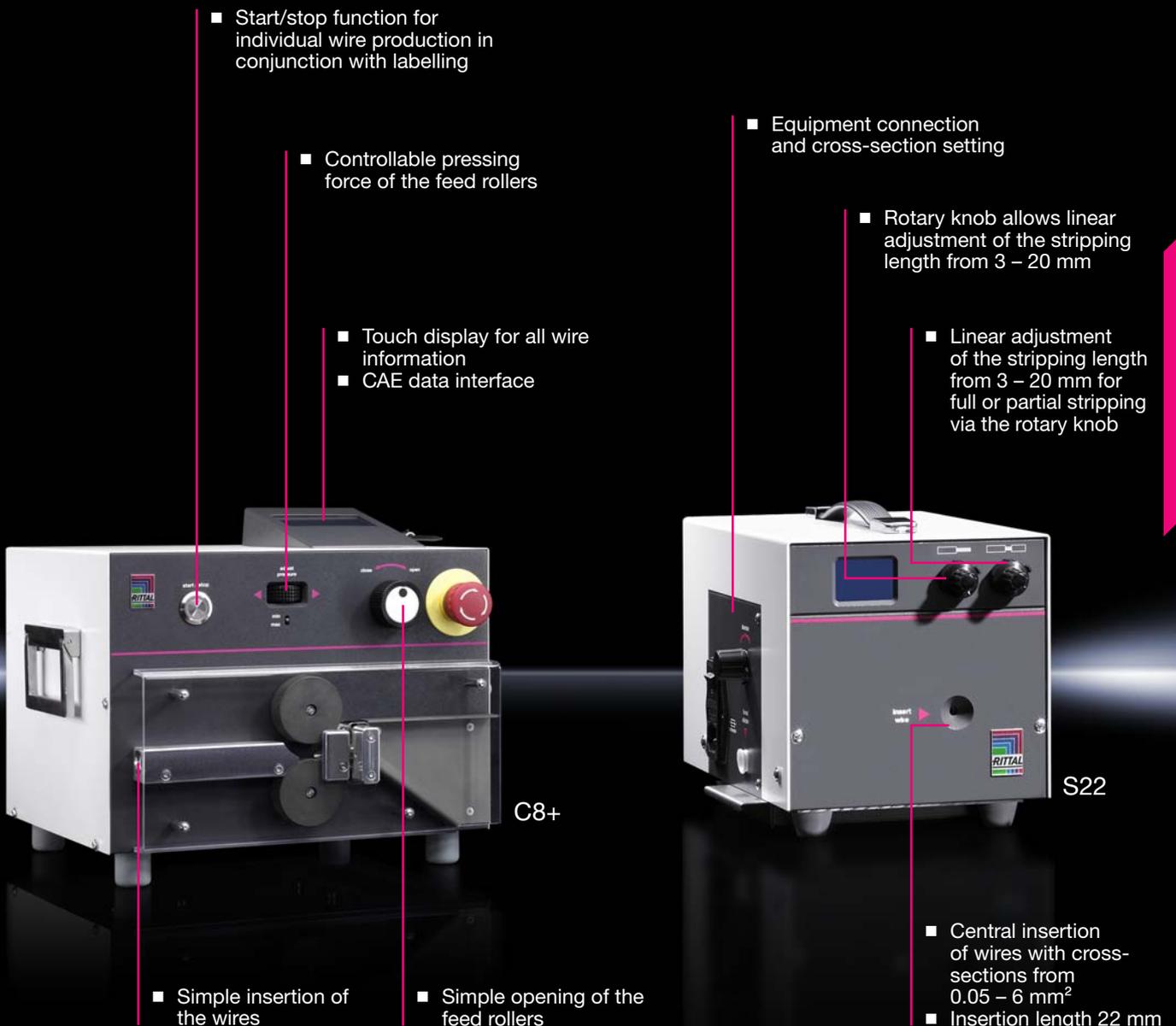


Length-cutting machine C8+ and stripping machine S22



The length-cutting machine C8+ makes work processes more efficient by cutting wires up to 8 mm diameter or 10 mm² cross-section to individually set lengths. Cutting orders can also be managed, documented and transmitted to the length-cutting machine C8+ from a PC or CAE data interface (EPLAN Pro Panel) via USB. In this way, the C8+ length-cutting machine additionally supports the cable labelling and wiring process by displaying the source/target code.

The stripping machine S22 is electrically powered for accurate, careful stripping of the insulation from your wires.



Stripping and crimping machine R8 E



The electrically driven R8 E crimping machine processes insulated wire end ferrules and standard PVC cables in cross-sections ranging from 0.5 to 2.5 mm² (AWG 20 – 14) with a crimping length of 8 mm. For flexible use in the workshop, all you need is a power connection. The machine guarantees UL-certified crimping in conjunction with wire end ferrules from Rittal.

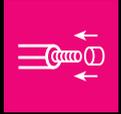


- Holder for taped wire end ferrules on a reel

R8 E

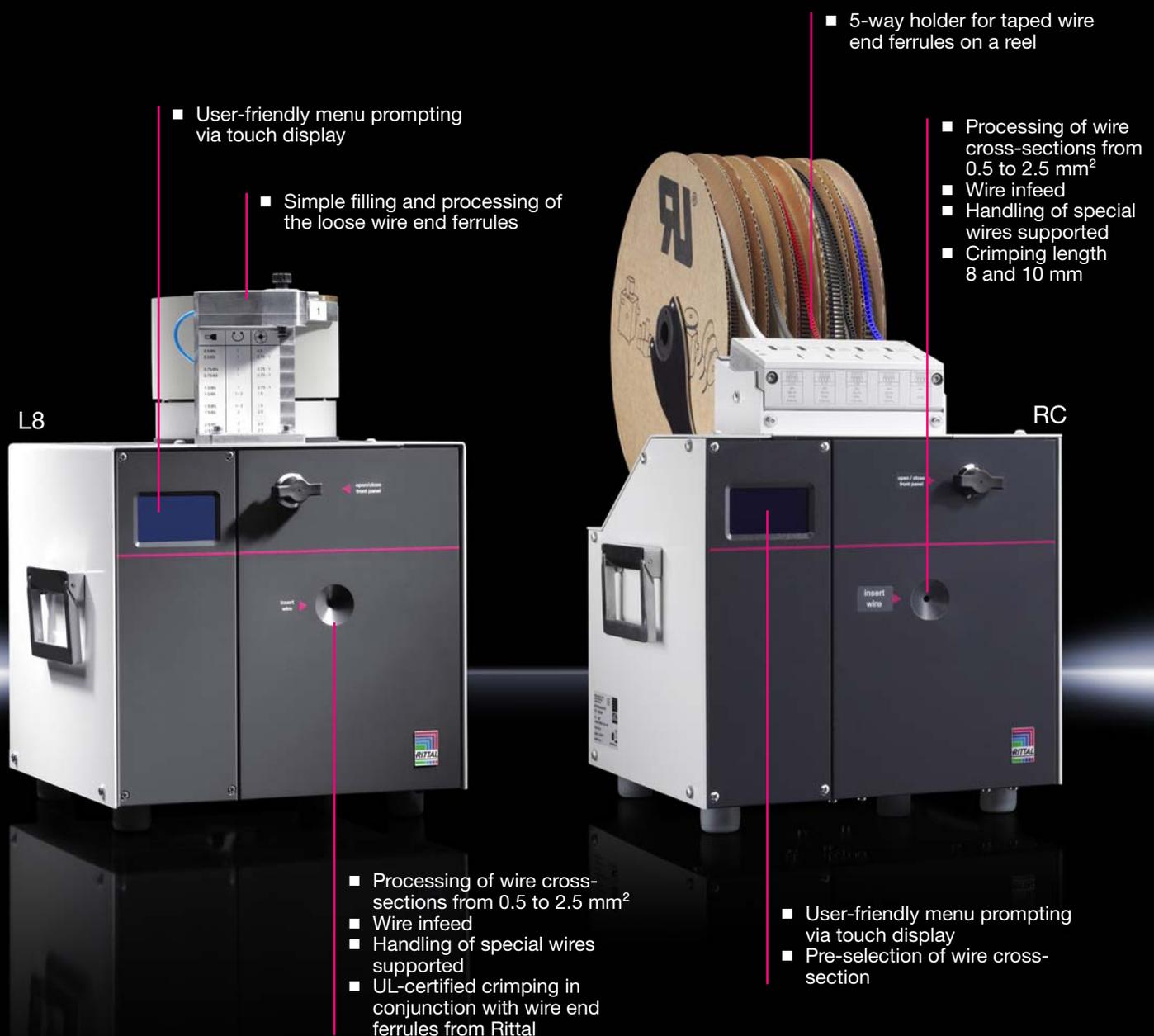
- Easy replacement of consumables
- Simple adjustment
- Flexible use in the workshop

Stripping and crimping machines L8 and RC



Electro-pneumatically driven wire-stripping and crimping machines for safe, fast processing of insulated wire end ferrules. The particular feature of our electro-pneumatic crimping machines is their fully automated detection of the wire cross-section and processing of the wire end ferrules. No tool changes are required. Linear adjustment of the blades and the high forces generated by the pneumatic crimping unit support the processing of all standard cables as well as special ferrules (AWG) in the application range from 0.5 to 2.5 mm² (AWG 20 – 14) with a crimping length of 8 mm. The integrated daily unit counter provides a continuous overview of your project quantities.

The crimping machine RC is suitable for processing wire end ferrules in 8 mm and 10 mm lengths with labelling on the underside. The 5-way holder eliminates the need to switch between wire end ferrules for different cross-sections.



Note:

The wire end ferrules shown here are not included with the supply.

Length-cutting machine C8+



Semi-automated machine for cutting wires to an individually adjustable length.

Design:

- With command panel
- Stop & go function

Benefits:

- User-friendly operation
- Simple insertion of the wires
- Simple opening of the feed rollers
- PC compatible
- Length-cutting with interface to CAE data supported
- Supports the process of labeling cables by showing the connection point on the display
- Simply transmit projects and orders to length-cutting machine C8+

Technical specifications:

- Fine-wire strand 0.08 - 10 mm² (AWG 28 - 8)
- Single-wire strand 0.08 - 2.5 mm² (AWG 28 - 14)
- For wire lengths 1 - 99999 mm
- Feed rate 0 - 1.5 m/s
- Controllable pressing force of the feed rollers
- DC servo-drive
- Insertion length 27 mm (1.06 in.)

Supply includes:

- Length-cutting machine C8+
- Connection cable with connector
- Software connection, CAE data
- Installation CD

Model No.	Packs of	4050.455	Page
Machine dimensions (W x H x D) mm		380 x 470 x 360	
Cycle time s		< 2	
Electrical connection V, ~, Hz		100 - 240, 1~, 50	
Apparent power VA		240	
Interfaces		EPLAN Pro Panel CAE data	
Weight kg		20.0	
Accessories			
Wire dispenser	1 pc(s).	4050.463	637

Stripping machine S22



Semi-automated machine for stripping wires of varying cross-section ranges.

Design:

- Touchscreen display
- Integral counter (total quantity)
- Integral counter (daily quantity)
- Linear adjustment of the wire stripping length

Benefits:

- Cross-section is easily set using the rotary knob
- Simple insertion of the wires
- User-friendly operation

Technical specifications:

- Electrically powered
- Wire stripping range 0.05 - 6 mm² (AWG 30 - 10)
- Insulation stripping length 3 - 20 mm (0.12 - 0.79 in.)
- Draw-off length 3 - 20 mm (0.12 - 0.79 in.)
- Insertion length 22 mm (0.87 in.)

Supply includes:

- Stripping machine S22
- Special funnel for inserting thin conductors
- Spare blades

Model No.	Packs of	4050.451	Page
Machine dimensions (W x H x D) mm		190 x 190 x 295	
Cycle time s		0.5	
Electrical connection V, ~, Hz		100 - 240, 1~, 50/60	
Apparent power VA		70	
Weight kg		7.5	

Crimping machine R8 E



Wire end ferrules Page 578

Electrically powered wire stripping and crimping machine for taped wire end ferrules on a reel.

Design:

- Touchscreen display

Benefits:

- Easy to operate
- Fast adjustment
- Flexible use in the workshop
- Rapid replacement of consumables

Technical specifications:

- Crimping range 0.5 - 2.5 mm² (AWG 20 - 14)
- Crimping length 8 mm (0.31 in.)
- Insertion length 40 mm (1.57 in.)

Note:

- The standard crimping form is trapezoid – others available on request

Model No.	Packs of	4050.454	Page
Machine dimensions (W x H x D) mm		288 x 230 x 345	
Cycle time s		1.8	
Compression		Trapezoid crimp	
Electrical connection V, ~, Hz		100 - 240, 1~, 50/60	
Apparent power VA		100	
Weight kg		16.0	
Accessories			
Wire end ferrules		see page	578

Crimping machine L8



Wire end ferrules Page 578

Electro-pneumatically driven wire stripping and crimping centre for loose, insulated wire end ferrules.

Design:

- Touchscreen display

Benefits:

- Easy to operate
- Secure, fast processing of insulated wire end ferrules
- No set-up time, thanks to automatic tool change
- Handling of special wires supported
- Simple, quick component mounting
- Automatic detection of cross-sections

Technical specifications:

- Crimping range 0.5 - 2.5 mm² (AWG 20 - 14)
- Crimping length 8 mm (0.31 in.)
- Insertion length 35 mm (1.38 in.)
- Processing of wire end ferrules with plastic collars in special sizes supported

Supply includes:

- Crimping machine L8
- 1 oscillating conveyor 0.5 - 1.5 mm²
- 1 oscillating conveyor 1.5 - 2.5 mm²

Note:

- The standard crimping form is trapezoid – others available on request

Model No.	Packs of	4050.452	Page
Machine dimensions (W x H x D) mm		390 x 460 x 330	
Cycle time s		1.5	
Compression		Trapezoid crimp	
Electrical connection V, ~, Hz		100 - 240, 1~, 50/60	
Apparent power VA		110	
Compressed air connection bar		5.5	
Weight kg		31.0	
Accessories			
Oscillating conveyor		see page	637
Wire end ferrules		see page	581

Crimping machine RC



Wire end ferrules Page 578

Electropneumatic crimping machine with 5-way magazine for processing insulated wire end ferrules on a reel.

Design:

- Touchscreen display
- Select the wire cross-section via touchscreen
- Support may be fitted with a maximum of 23,000 wire end ferrules

Benefits:

- Easy to operate
- Secure, fast processing of insulated wire end ferrules
- No set-up time, thanks to automatic tool change
- Simple, quick component mounting
- No changing of the wire end ferrules required due to 5-way magazine

Technical specifications:

- Crimping range 0.5 - 2.5 mm² (AWG 20 - 14)
- Crimping length 8 and 10 mm
- Insertion length 27 mm (1.06 in.)

Note:

- The standard crimping form is trapezoid – others available on request

Model No.	Packs of	4050.456	Page
Machine dimensions (W x H x D) mm		335 x 565 x 485	
Cycle time s		< 2	
Compression		Trapezoid crimp	
Electrical connection V, ~, Hz		100 - 240, 1~, 50/60	
Apparent power VA		16	
Compressed air connection bar		5.5	
Weight kg		22.0	
Accessories			
Wire end ferrules		see page	578

Accessories

for wire processing machines

Oscillating conveyor

for crimping machine L8

Feed guide for loose wire end ferrules.

Benefits:

- Accurate, careful feeding of wire end ferrules

To fit Model No.	Application	Packs of	Model No.
4050.452	For loose wire end ferrules with cross-section 0.5 – 1.5 mm ²	1 pc(s).	4050.467
4050.452	For loose wire end ferrules with cross-section 1.5 – 2.5 mm ²	1 pc(s).	4050.468



Wire dispenser

for length-cutting machine

Dispensing device for the infeed of conductors. Suitable for conductors on cable coils or from boxes.

Benefits:

- Convenient removal and dispensing of cables and wires

Technical specifications:

- Cable coil diameter ≤ 300 mm (≤ 11.8 in.)
- Cable coil width ≤ 200 mm (≤ 7.9 in.)
- Clamping cone 15 - 23 mm (0.59 - 0.91 in.)
- Box dimensions 240 x 250 x 150 mm (9.45 x 9.84 x 5.9 in.)

Packs of	Model No.
1 pc(s).	4050.463



Busbar machining, static CW 120-S



The units in the CW 120-S product series are ideal for bending, punching and cutting busbars. The integral precision laser facilitates the cutting and bending process.

Electro-hydraulic pump

- To operate products in the CW 120-S product series.

Busbar cutting unit

- Time savings compared to manual cutting
- Precise marking of the cutting point

Busbar bending and hole-punching unit

- Simple tool changes
- High level of bending and punching accuracy
- Independent busbar machining



Machining examples for the CW 120-S



Punching



Cutting a busbar to length



Bending a busbar

Busbar machining, mobile CW 120-M



The Copper Workstation CW 120-M is ideal for bending, punching and cutting busbars. It supports cutting and bending up to a maximum width of 120 mm and a maximum thickness of 12 mm. The integral precision laser facilitates the cutting and bending process. Generally speaking, round holes with a diameter of 6.6 to 21.5 mm and slots up to a maximum width of 18 mm and a length of 21 mm may be punched.



Automation Systems

Machining examples for the CW 120-M



Cutting busbars to length with integral precision laser

Bending busbars

Punching busbars, pull-out measurement system

Making cut-outs in steel and stainless steel (accessories, hydraulic hose and cylinder, see page 645)

Busbar bending and hole-punching unit CW 120-S



Female dies Page 643 **Male dies** Page 643 **Accessories** Page 644

The bending and hole-punching unit in the CW 120-S product series is ideal for bending and punching busbars. Round holes and slots may be punched. The bending and hole-punching unit is easily positioned on a workbench.

Design:

- Electric protractor
- Length stop
- Mandrel R10
- Bending die
- Laser pointer (auxiliary laser), beam power laser class 1

Benefits:

- High level of bending and punching accuracy
- Simple tool changes

Machinable material:

- Copper
- Aluminium

Note:

- With a Z bend, the length of the short side depends on the material thickness

Model No.	Packs of	4055.700	Page
Machine dimensions (W x H x D) mm		700 x 410 x 461	
Footprint size (W x H x D) mm		756 x 426 x 461	
Bending (max.) mm		120 x 12	
Bending angle (max.) °		90	
Bending/side length (min.) mm		50	
U-bending (min.) mm		100	
Z-bending (min.) mm		72	
Punching (max.) mm		6.6 x 21.5	
Punching/material thickness (max.) mm		12	
Punching/material width (max.) mm		120	
Weight kg		60.0	
Also required			
Electro-hydraulic pump	1 pc(s).	4055.720	644
Foot-switch	1 pc(s).	4055.712	644

Busbar cutting unit CW 120-S



Accessories Page 644

The cutting unit in the CW 120-S product series is ideal for cutting busbars to length. The unit is easily mounted on a workbench.

Design:

- Laser pointer (auxiliary laser), beam power laser class 1

Benefits:

- Significant time savings compared to manual cutting

Machinable material:

- Copper
- Aluminium

Model No.	Packs of	4055.710	Page
Machine dimensions (W x H x D) mm		335 x 370 x 275	
Footprint size (W x H x D) mm		283 x 318 x 372	
Cutting (max.) mm		120 x 12	
Weight kg		20.5	
Also required			
Electro-hydraulic pump	1 pc(s).	4055.720	644
Foot-switch	1 pc(s).	4055.712	644
Accessories			
Ride-up roller	2 pc(s).	4055.714	645

Busbar machining CW 120-M



Female dies Page 643 **Male dies** Page 643 **Accessories** Page 644

The mobile product solution for busbar machining is ideal for the precise, fast and ergonomic bending, punching and cutting of busbars directly at your workstation. The integral precision laser facilitates the cutting and bending process.

Design:

- Electric protractor
- Mandrel R10
- Bending die
- External 230 V power inlet
- Pull-out side support extension for long rails
- External hydraulic connection for almost all machining options
- 4 castors (2 lockable)
- Drawer pull-outs
- Integral hydraulic pump
- Laser pointer (auxiliary laser), beam power laser class 1
- Length end stop, pull-out

Benefits:

- High level of bending and punching accuracy
- Simple tool changes
- Flexible use in the workshop

Machinable material:

- Copper
- Aluminium

Supply includes:

- Busbar machining, mobile CW 120-M
- Foot-switch

Note:

- With a Z bend, the length of the short side depends on the material thickness
- For punching, slots of up to a max. of 21 x 18 mm are also supported
- Slot tools available on request
- We reserve the right to make technical modifications

Model No.	Packs of	4055.800	Page
Machine dimensions (W x H x D) mm		1380 x 1270 x 945	
Support surface (W x D) mm		811 x 1211	
Working height mm		974	
Power consumption kW		2.2	
Electrical connection V, Hz		230, 50/60	
Permissible operating pressure (p. max.) bar		700	
Bending (max.) mm		120 x 12	
Bending angle (max.) °		90	
Bending/side length (min.) mm		50	
Z-bending (min.) mm		72	
Punching (max.) mm		6.6 x 21.5	
Punching/material thickness (max.) mm		12	
Cutting (max.) mm		120 x 12	
Length stop (max.) mm		1224	
Weight kg		390.0	
Accessories			
Hydraulic hose	1 pc(s).	4055.807	645
Hydraulic cylinder	1 pc(s).	4055.806	645
Male and female dies for slots	1 pc(s).	4055.791	644

Accessories

for busbar machining CW 120

Male dies

Male dies for punching round holes in busbars.

Machinable material:

- Copper

Thread	Diameter mm	Material thickness (max.) mm	Packs of	Model No.
M6	6.6	10	1 pc(s).	4055.740
M8	9	12	1 pc(s).	4055.741
M8	9.5	12	1 pc(s).	4055.742
M10	11	12	1 pc(s).	4055.743
M10	11.5	12	1 pc(s).	4055.744
M12	13.5	12	1 pc(s).	4055.745
M12	14	12	1 pc(s).	4055.746
M16	17.5	12	1 pc(s).	4055.747
M16	18	12	1 pc(s).	4055.748
M20	21	12	1 pc(s).	4055.749
M20	21.5	12	1 pc(s).	4055.750



! Also required:

- Busbar bending and hole-punching unit CW 120-S, see page 640
- Busbar machining CW 120-M, see page 642
- Female dies, see page 643

Female dies

The female dies should be used in combination with the respective male die. This allows round holes to be punched in busbars.

Machinable material:

- Copper

Diameter mm	Material thickness (max.) mm	Packs of	Model No.
6.6	10	1 pc(s).	4055.770
9	12	1 pc(s).	4055.771
9.5	12	1 pc(s).	4055.772
11	12	1 pc(s).	4055.773
11.5	12	1 pc(s).	4055.774
13.5	12	1 pc(s).	4055.775
14	12	1 pc(s).	4055.776
17.5	12	1 pc(s).	4055.777
18	12	1 pc(s).	4055.778
21	12	1 pc(s).	4055.779
21.5	12	1 pc(s).	4055.780



! Also required:

- Busbar bending and hole-punching unit CW 120-S, see page 640
- Male dies, see page 643
- Busbar machining CW 120-M, see page 642

Accessories

for busbar machining CW 120



Male and female dies for slots

For incorporating slots up to max. 21 x 18 mm into busbars.

Machinable material:

- Copper

Supply includes:

- Male and female dies for slots

Note:

- Slot tools available on request

Packs of	Model No.
1 pc(s).	4055.791



Also required:

- Busbar bending and hole-punching unit CW 120-S, see page 640
- Busbar machining CW 120-M, see page 642



Electro-hydraulic pump

The electro-hydraulic pump is used to drive products in the CW 120-S product series.

Oil type	HLP 32
Delivery rate (max.) l/min	1.1
Fill volume l	3.2
Work volume l	2.2
Permissible operating pressure (p. max.) bar	700
Machine dimensions (W x H x D) mm	400 x 325 x 335
Space requirements (W x H x D) mm	402 x 342 x 397
Electrical connection V, Hz	230, 50
Power consumption kW	1.3
Rated current A	5.65
Packs of	1 pc(s).
Model No.	4055.720



Foot-switch

Footswitch including connection cable, for using busbar machining equipment from the CW 120-S range.

Packs of	Model No.
1 pc(s).	4055.712

Accessories

for busbar machining CW 120

Hydraulic cylinder

The hydraulic cylinder is ideal for making cut-outs in sheet steel and stainless steel. It is used in conjunction with the hydraulic pump or the CW 120-M.

Design:

- With quick-release coupling

Benefits:

- Flexible use in the workshop
- Ergonomic handling
- Allows you to create cut-outs without the application of force

Machinable material:

- Sheet steel
- Stainless steel

Punching force t	Packs of	Model No.
11	1 pc(s).	4055.806

! Also required:

- Hydraulic hose, see page 645



Hydraulic hose

The hydraulic hose, in combination with the hydraulic cylinder, allows round, square and rectangular cut-outs to be punched in sheet steel and stainless steel. It is used in conjunction with the hydraulic pump or the CW 120-M.

Design:

- Double-walled

Length m	Packs of	Model No.
3	1 pc(s).	4055.807



Ride-up roller for busbars

Ride-up roller for user-friendly handling when cutting busbars to size.

Packs of	Model No.
2 pc(s).	4055.714



Boost productivity at every step

Seamless optimisation of all process stages. The efficiency of panel building and switchgear manufacturing is determined by the quality of productivity, as well as all automated and manual work stages. Digitalization supports the ideal workflow, from engineering right through to production.

Machining

- Significant time savings with the Perforex BC milling centre
- High level of precision with the Perforex BC laser centre
- Less wastage with the Secarex AC 18 cutting centre

Component mounting

- Efficient population of terminal blocks on support rails with the Athex TC 80 CS terminal block assembly centre

Wire processing and wiring

- Faster processes, thanks to fully automated wire processing with the Wire Terminal WT



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

FRIEDHELM LOH GROUP



Perfecting the hand tool

High-quality hand tools for professional use in industry and trade,
from page 565



Simplify handling

Ergonomic, efficient handling systems for transport and lifting operations,
from page 606



Systematise wire processing

Professional, rational solutions for manual wire machining and processing
Crimping tools, from page 574
Semi-automatic machines, from page 632



Streamline wiring

To complete the process chain, Rittal Automation Systems are involved in
developing pioneering wiring solutions, right through to full automation.



Automate machining

Fully automated milling or laser machining, plus machining of busbars
and cable ducts
Busbar machining, from page 638



Make component mounting more flexible

Automatic manufacturing and component mounting of terminal strips,
from page 658



ePLAN[®]
electric P8

- **EPLAN Electric P8** 
For project management, documentation and administration of electrical engineering automation projects

ePLAN[®]
data portal

- **EPLAN Data Portal** 
Database with over 500,000 data models for electrical engineering project management

ePLAN[®]
pro panel

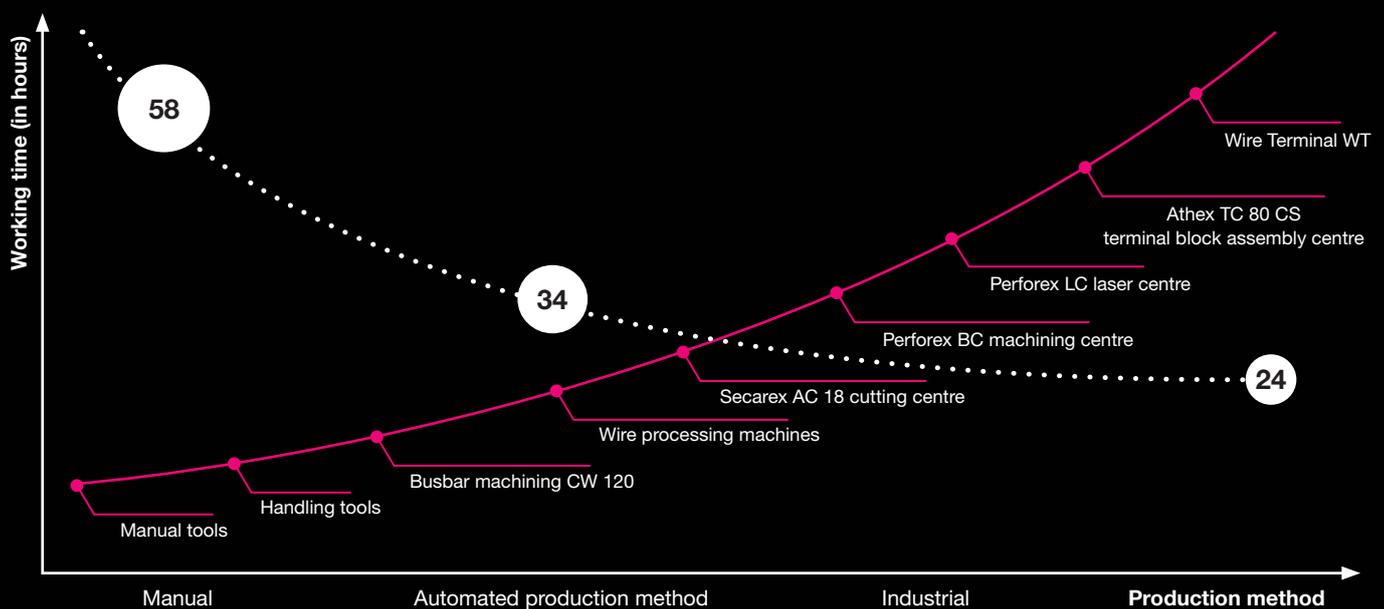
- **EPLAN Pro Panel** 
For technological project management and 3D assembly layout of enclosures

Rittal and EPLAN automate panel building

Alongside the Eplan software tools, Rittal Automation Systems provides a comprehensive range of equipment for professional workshop operation. To accelerate individual production stages, we offer a number of automation concepts which may be cost-effectively adapted to suit individual requirements and different sized companies.

Our product spectrum ranges from manual tools through to fully automated machining centres. Depending on the level of automation, you can reduce machining times, as illustrated by the following case study.

Accelerate processes by boosting the level of automation



Automation Systems

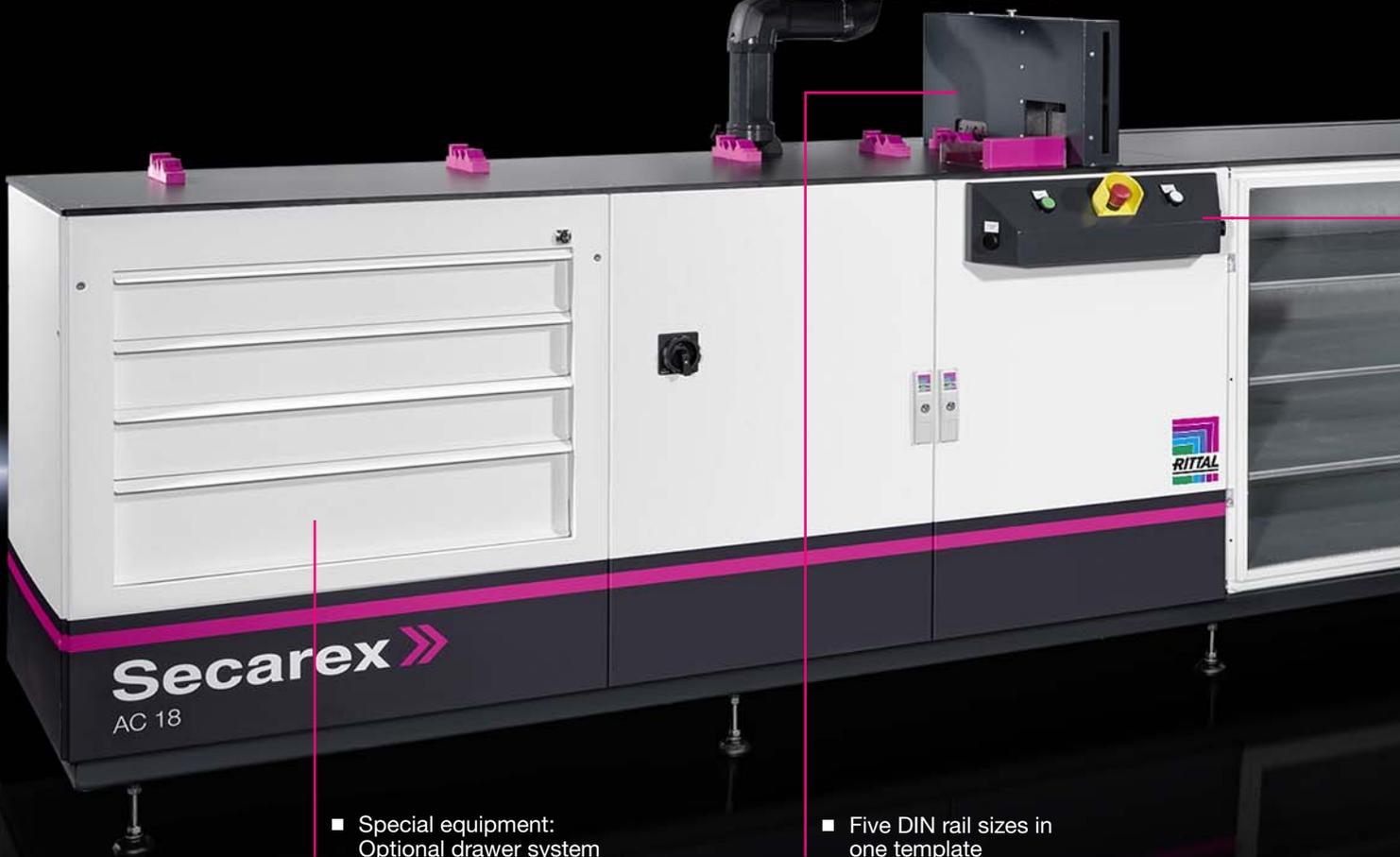


Cutting centre Secarex AC 18



The Secarex cutting centre is convenient to use and cuts wiring ducts, cable duct covers and support rails to length quickly, precisely and reliably. The integral label printer provides project-specific labelling of the support rails and cable trunking. The cutting centre helps to improve quality, optimise cutting waste, lower costs and accelerate the overall process. Investing in a Secarex cutting centre AC 18 for cutting support rails and wiring ducts to size is cost-effective from just 200 enclosures per annum. In this example, the ROI calculation is approximately 3 years.

- Modern operating solution: 18.5" monitor, top-hat rail industrial PC with i3 processor, and keyboard with trackball
- Data is transferred directly from CAE systems (EPLAN Pro Panel) or Perforex workshop programming, or alternatively, dimensions may be entered manually by the operator
- USB interface



- Special equipment: Optional drawer system

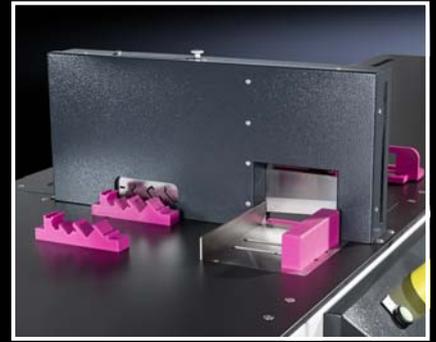
- Five DIN rail sizes in one template



Mousepad support, vertically hinged



Machine operation with keyboard and label printing for project-specific allocation of blanks when using cut optimisation



Cut-to-size unit for support rails and wiring ducts

- Safe, two-handed operation for cutting wiring ducts and support rails to size at the push of a button
- Cut optimisation across multiple projects
- Automatic length end stop



- Special equipment:
Optional Storage system



Milling centre Perforex BC



Perforex machining centres accelerate your throughput times when machining anything from the smallest enclosures and enclosure panels, right through to large enclosures. The drilling and milling centres in the Perforex BC series allow you to machine any material, including spray-finished sheet and stainless steel as well as aluminium, copper and plastic. The Perforex BC series is characterised by its fast, simple machining. The fully welded machine frame guarantees short throughput times with a consistently high machining quality plus fast, precise and reliable working. A short-term ROI of < 3 years can be achieved from just 150 enclosures per annum.

User-friendly shop-floor programming with central database

- Interface to EPLAN Pro Panel and all common CAD systems
- Processing of the neutral DXF format
- Transfer of configuration data from the Rittal Configuration System (RiCS)



Operational safety

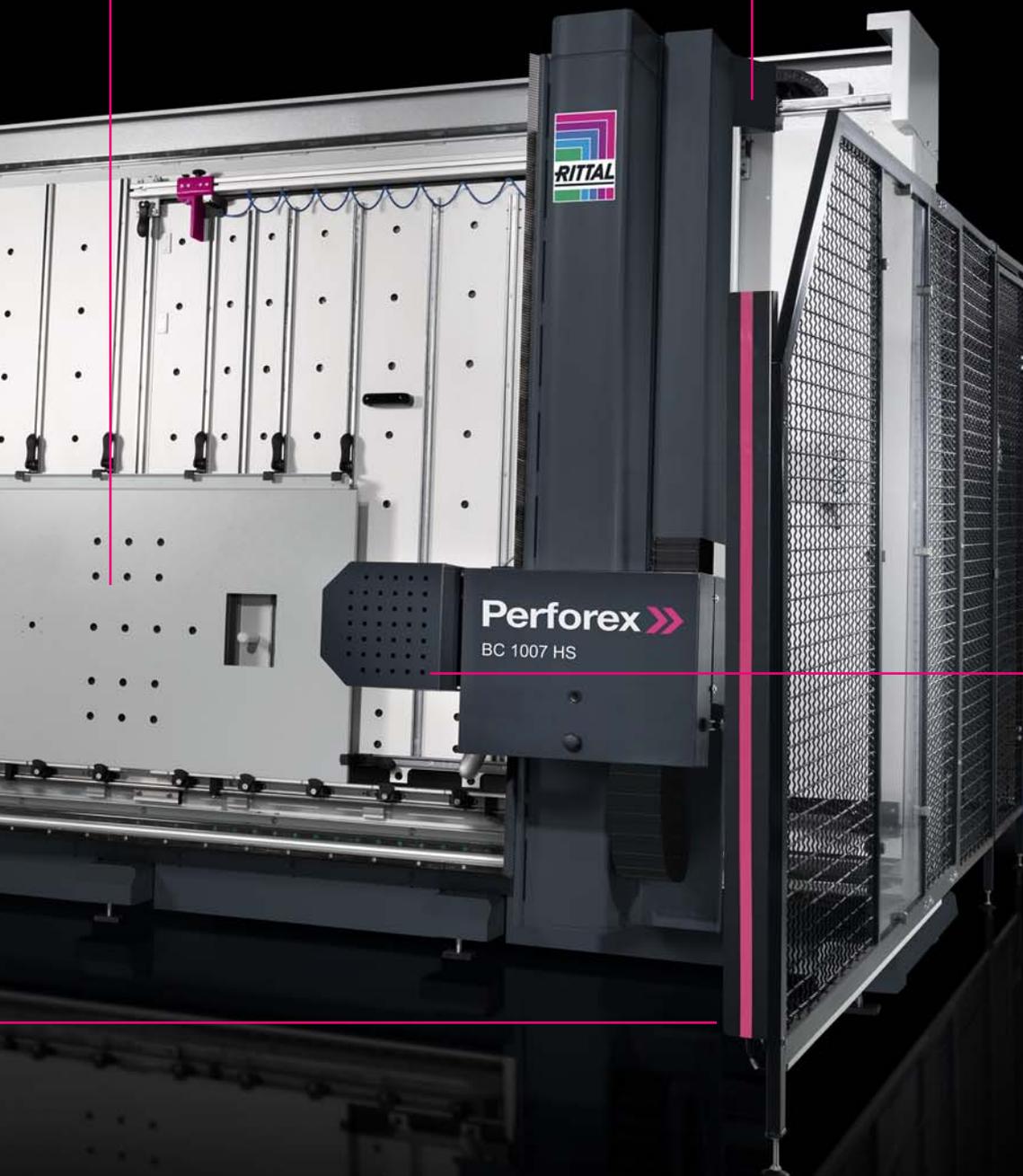
- A light barrier/light array ensures operator safety and correct functioning of the machine
- The machine can be restarted directly after acknowledging the safety function

Performance package

- Faster feed rate for the milling cutter
- Rapid, user-friendly clamping of workpieces
- Dampened vibrations and noise emissions
- Extended tool life
- Shorter processing times

Installation – Maintenance – Servicing

- Short installation and training times
- Maintenance-friendly with easy access
- Global service network



Powerful high-performance spindle

- Up to 23,000 rpm
- Faster processing times
- Higher throughput
- Use of DIN tools and automatic tool checks

Integral swarf extraction in the spindle

- Extraction close to machining
- Less cleaning work
- Fast workpiece changes
- Greater productivity

Laser centre Perforex LC



The 3D laser technology in the Perforex LC is ideally suited for machining stainless steel and sheet steel, as well as powder-coated metals such as enclosure doors, side panels etc. Spray-finished metal parts are cut without any visible paint damage or discolouration, even with delicate contours. What is more, there is no tarnishing of the cut edges when machining stainless steel. It is worth investing in a laser from around 300 enclosures per annum, ideally with a stainless steel proportion of around 30%.

User-friendly shop-floor programming with central database

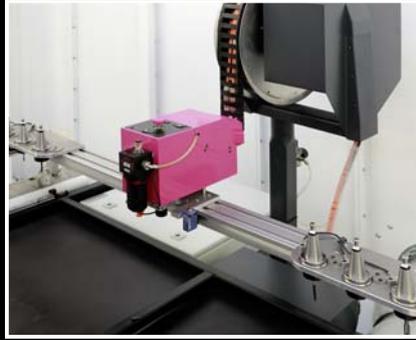
- Machine operation with 3D visualisation
- Interfaces to EPLAN Pro Panel
- Processing of the neutral DXF format
- Transfer of configuration data from the Rittal Configuration System (RiCS)





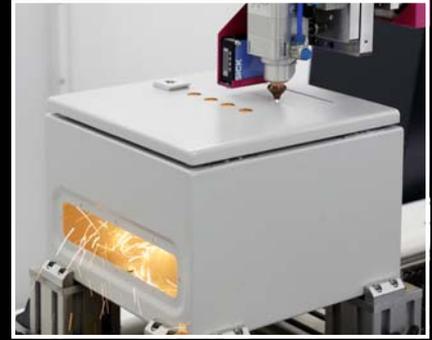
Simultaneous machining of five sides

- Less setup time
- Less strain on the operating personnel
- Machining of multiple components in a single operation



Thread tapping option for LC 3030

- Six different thread sizes in the tool magazine
- Automatic change-over of the machine head
- Greater variability in manufacturing



Contactless, low-vibration manufacturing process

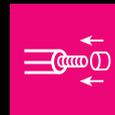
- Clean, non-wearing cutting without coolant/lubricant
- Machining speed with stainless steel is several times higher than with conventional milling processes
- No rework required
- Shorter throughput times
- Greater productivity



Simple attachment of enclosures without clamping

- More ergonomic
- Faster population
- Less risk of damage
- Less strain on the operating personnel

Wire Terminal WT fully automated wire processing machine

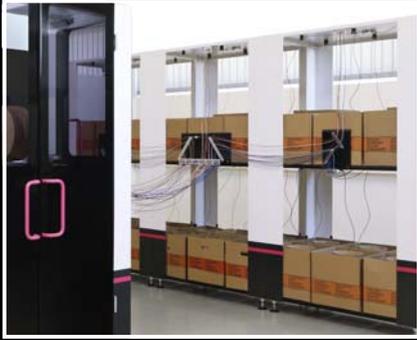


Component wiring is a time-consuming task, accounting for around 50% of the time in panel building and switchgear manufacturing. The compact Wire Terminal 24 or 36 fully automated wire processing machine ensures efficient, cost-effective wire processing. Up to 36 different wires in cross-sections ranging from 0.5 mm² to 2.5 mm² may be processed fully automatically without retooling. The optional print system prints the wires in black or white, then transfers them to downstream process stages via a controlled ordering system capable of accommodating up to 1800 processed wires. All production data can be read and processed via suitable interfaces. Manual logging of wire lists is likewise supported.



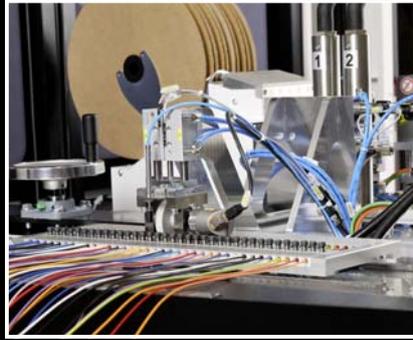
- Integral touch display for data processing

- Label printer for wire magazine identification



Wire storage

The modular, space-saving wire store and wire routing system for the Wire Terminal. Six wire drums are stored on each of the two levels in a space-saving design. Depending on the number of wires used, the fully automatic wire processing machine may be fitted with additional wire stores (central, left, right), each with space for 12 wire containers.



24 or 36 wires

The Wire Terminal may be fitted with wire guides for 24 or 36 wires. Wires are fed in via a 24-/36-wire feed magazine which is horizontally adjustable and controlled via a servo-motor NC axis. Wires are clamped by a spring-assisted clamp which is pneumatically released during the wire feed process.



Wire labelling and processing

To ensure optimum positioning of the origin/destination on the wires, the Wire Terminal may be fitted with black, white or both marking systems. Multiple insulation stripping and crimping machines may also be integrated via an optional lift.



Selection of wire magazines

The pre-processed wires can be sequentially stored in 13 wire rails by cross-section and by other project-specific criteria.



Wire Cart

The optional Wire Cart allows assembled wires to be processed directly at the workstation on a project-specific basis. It can also accommodate tools and provide for adaptation of a monitor. The integral storage system can be used for more wires.



Smart Wiring

EPLAN Smart Wiring is ideal for efficient wire processing.

Design

- For fully automatic processing of wire lists for wire assembly
- Suitable wire stores are selected depending on the number of wires
- When using multiple crimping machines for different cross-sections, the machine may be fitted with a lift option

Benefits

- Processes are 8 times faster, thanks to fully automated wire processing with individual wire printing and order-picking
- Fully interlinked, from the E-CAD tool through to the production processes
- Consistently high quality
- Amortisation period of 2.5 years from a minimum of 300 enclosures per annum

Machinable material

- Fine-wire copper cables to DIN VDE 0295 Category 5

Terminal block assembly centre Athex TC 80 CS



The Athex TC 80 CS terminal block assembly centre handles data from EPLAN Pro Panel or manually configured XML formats. During machining, support rails from the buffer store are measured and automatically cut to size, then marked on the underside with a needle engraver for order-picking / project-planning. In a subsequent operation, the terminals required are either fitted directly on the terminal strip with a gripper system, or optionally labelled with the laser marking system prior to positioning. The finished terminal strip is ejected from the machine via the sorting unit and can be removed. Users with a high volume of terminal blocks (> 760,000 units per annum) will achieve ROI within approximately 4 years.



Design

- Material store for support rail versions TS 35/7.5 and TS 35/15 to EN 60 715
- Automatic measurement and cutting unit
- Needle marking system for labelling the support rail undersides
- Fully automated gripper system for populating the support rails with terminal blocks
- Laser marking system for labelling the terminals and components
- Sorting and buffer stores for the finished terminal strips



Sorting unit and buffer stores for the finished terminal strips

- Upgradable with up to 80 magazine slots
- Up to 800 terminals per hour (excluding printing)
- Terminal types from all well-known manufacturers may be used



Stocking of up to 80 magazines for terminal blocks, miniature fuse-breakers etc.



Automated terminal block assembly and labelling with a laser marking system

- Labelling during assembly with a laser marking system