

## **MìR**Hook™ Data sheet

## MiRHook for automated in-house cart transport solutions

Designated use  Mobile robot with hook for fully-automated pick-up and delivery of carts  Dimensions  Length 1275 to 1180 mm (hook lowest to highest positions)  Width 600 mm Height 550 to 900 mm (hook lowest to highest positions)  Height above floor Robot: 50 mm; Gripping height: 50-390 mm Weight (without load) 97 kg  Pulling capacity up to 300 kg  Speed and performance  Running time 8-10 hours or 15-20 km (depending on load)  Maximum speed 15 m/s (5.4 km/h)  Maximum grade increase 5% with 200 kg load  Turning radius (without trolley) 0.83 m (around center of robot)  Swinging radius (with trolley) 150 tall length of robot and cart plus 0.55 m  Positioning accuracy (placing trolley) 20 cm from center of position, 10° accuracy  Power  Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range 15°C to 50°C (humidity 10-95% non-condensing)  IP class IP 20  Communication  WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.) 360° visual protection around robot  3D camera Intel RealSense" on robot detection of objects ahead e.g. glass doors  Trolley  Length 600 to 2400 mm  Width 400 to 1500 mm  Height 200 to 2000 mm	Specifications	
Length 1275 to 1180 mm (hook lowest to highest positions) Width 600 mm Height 550 to 900 mm (hook lowest to highest positions) Height above floor Robot: 50 mm; Gripping height: 50-390 mm Weight (without load) 97 kg Pulling capacity Load on trolley up to 300 kg Speed and performance Running time 8-10 hours or 15-20 km (depending on load) Maximum speed 1.5 m/s (5.4 km/h) Maximum grade increase 5% with 200 kg load Turning radius (without trolley) 0.83 m (around center of robot) Swinging radius (without trolley) 15 to 18 length of robot and cart plus 0.55 m Positioning accuracy (placing trolley) 2.0 cm from center of position, 10° accuracy Power Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A Environment  Ambient temperature range +5°C to 50°C (humidity 10-95% non-condensing) IP class IP 20 Communication  WiFi Dual-band wireless AC/G/N/B Bluetooth (for peripheral equipment, e.g. automatic doors) I/Os USB and Ethernet Safety sensors SICK laser scanners S300 (2 pcs.) 360° visual protection around robot detection of objects ahead 5-50 cm above floor JD camera Intel RealSense™ on robot detection of objects ahead, e.g. glass doors Trolley Length 500 to 2400 mm Width 400 to 1500 mm	Designated use	
Width Height   550 to 900 mm (hook lowest to highest positions) Height above floor   Robot: 50 mm; Gripping height: 50-390 mm Weight (without load)   97 kg Pulling capacity   Up to 300 kg Speed and performance Running time   8-10 hours or 15-20 km (depending on load) Maximum speed   15 m/s (5.4 km/h) Maximum grade increase   5% with 200 kg load Turning radius (without trolley)   0.83 m (around center of robot) Swinging radius (with trolley)   Total length of robot and cart plus 0.55 m Positioning accuracy (placing trolley)   ±20 cm from center of position, 10° accuracy Power  Battery   Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger   Input: 100-230 V ac; 50-60 Hz / Output: 24 V, max 15 A Environment  Ambient temperature range   +5°C to 50°C (humidity 10-95% non-condensing) IP class   IP 20 Communication  WiFi   Dual-band wireless AC/G/N/B Bluetooth (for peripheral equipment, e.g. automatic doors) I/Os   USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.)   360° visual protection around robot   3D camera Intel RealSense™ on robot   detection of objects ahead 5-50 cm above floor   Ultrasonic scanners (4 pcs.)   detection of transparent objects ahead, e.g. glass doors  Trolley Length   500 to 2400 mm Width   400 to 1500 mm	Dimensions	
Height above floor Robot: 50 to 900 mm (hook lowest to highest positions) Height above floor Robot: 50 mm; Gripping height: 50-390 mm Weight (without load) 97 kg  Pulling capacity Load on trolley up to 300 kg  Speed and performance  Running time 8-10 hours or 15-20 km (depending on load) Maximum speed 1.5 m/s (5.4 km/h) Maximum gradie increase 5% with 200 kg load  Turning radius (without trolley) 0.83 m (around center of robot)  Swinging radius (with trolley) 1 total length of robot and cart plus 0.55 m Positioning accuracy (placing trolley) 220 cm from center of position, 10° accuracy  Power  Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range +5°C to 50°C (humidity 10-95% non-condensing)  IP class IP 20  Communication  WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.) 360° visual protection around robot 30 camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.) 7 detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width	Length	1275 to 1180 mm (hook lowest to highest positions)
Height above floor Robot: 50 mm; Gripping height: 50-390 mm  Weight (without load) 97 kg  Pulling capacity Load on trolley up to 300 kg  Speed and performance  Running time 8-10 hours or 15-20 km (depending on load)  Maximum speed 1.5 m/s (5.4 km/h)  Maximum grade increase 5% with 200 kg load  Turning radius (without trolley) 0.83 m (around center of robot)  Swinging radius (with trolley) Total length of robot and cart plus 0.55 m  Positioning accuracy (placing trolley) ±20 cm from center of position, 10° accuracy  Power  Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range +5°C to 50°C (humidity 10-95% non-condensing)  IP class IP 20  Communication  WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.) 360° visual protection around robot  3D camera Intel RealSense" on robot detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.) 600 to 2400 mm  Width 400 to 1500 mm	Width	600 mm
Weight (without load) Pulling capacity Load on trolley Up to 300 kg Speed and performance Running time 8-10 hours or 15-20 km (depending on load) Maximum speed 1.5 m/s (5.4 km/h) Maximum grade increase 5% with 200 kg load Turning radius (without trolley) 0.83 m (around center of robot) Swinging radius (with trolley) Total length of robot and cart plus 0.55 m Positioning accuracy (placing trolley) 20 cm from center of position, 10° accuracy Power Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A Environment Ambient temperature range Poul Poul IP class IP 20 Communication WiFi Dual-band wireless AC/G/N/B Bluetooth (for peripheral equipment, e.g. automatic doors) I/Os USB and Ethernet Safety sensors SICK laser scanners \$300 (2 pcs.) 360° visual protection around robot 3D camera Intel RealSense" on robot 3D camera Intel RealSense" on front of hook detection of objects ahead 5-50 cm above floor Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors Trolley Length 500 to 2400 mm Width	Height	550 to 900 mm (hook lowest to highest positions)
Pulling capacity  Load on trolley  Load on trolley  Load on trolley  Speed and performance  Running time  8-10 hours or 15-20 km (depending on load)  Maximum speed  1.5 m/s (5.4 km/h)  Maximum gradie increase  5% with 200 kg load  Turning radius (without trolley)  Swinging radius (without trolley)  Swinging radius (with trolley)  Positioning accuracy (placing trolley)  Power  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Environment  Ambient temperature range  IP class  IP 20  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  SuB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  detection of objects ahead up to 200 cm above floor  Dutlength HealSense™ on robot  detection of transparent objects ahead, e.g. glass doors  Trolley  Length  500 to 2400 mm  Width	Height above floor	Robot: 50 mm; Gripping height: 50-390 mm
Load on trolley  Speed and performance  Running time  8-10 hours or 15-20 km (depending on load)  Maximum speed  1.5 m/s (5.4 km/h)  Maximum grade increase  Turning radius (without trolley)  Swinging radius (without trolley)  Positioning accuracy (placing trolley)  Positioning accuracy (placing trolley)  Power  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  IP class  IP 20  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.)  to the source of the sour	Weight (without load)	97 kg
Speed and performance Running time  Running time  8-10 hours or 15-20 km (depending on load)  Maximum speed  1.5 m/s (5.4 km/h)  Maximum grade increase  5% with 200 kg load  Turning radius (without trolley)  0.83 m (around center of robot)  Swinging radius (with trolley)  Total length of robot and cart plus 0.55 m  Positioning accuracy (placing trolley)  Power  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  +5°C to 50°C (humidity 10-95% non-condensing)  IP class  IP 20  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense" on robot  detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.)  detection of transparent objects ahead, e.g. glass doors  Trolley  Length  500 to 2400 mm  Width	Pulling capacity	
Running time 8-10 hours or 15-20 km (depending on load)  Maximum speed 1.5 m/s (5.4 km/h)  Maximum grade increase 5% with 200 kg load  Turning radius (without trolley) 0.83 m (around center of robot)  Swinging radius (with trolley) Total length of robot and cart plus 0.55 m  Positioning accuracy (placing trolley) ±20 cm from center of position, 10° accuracy  Power  Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger Invironment  Ambient temperature range +5°C to 50°C (humidity 10-95% non-condensing)  IP class IP 20  Communication  WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.) 360° visual protection around robot  3D camera Intel RealSense* on robot detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width	Load on trolley	up to 300 kg
Maximum speed       1.5 m/s (5.4 km/h)         Maximum grade increase       5% with 200 kg load         Turning radius (without trolley)       0.83 m (around center of robot)         Swinging radius (with trolley)       Total length of robot and cart plus 0.55 m         Positioning accuracy (placing trolley)       ±20 cm from center of position, 10° accuracy         Power       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)         Internal charger       +5°C to 50°C (humidity 10-95% non-condensing)         Ip 20       Double seed to 50°C (humidity 10-95% non-condensing)         Ip 20       Dual-band wireless AC/G/N/B         Bluetooth (for peripheral equipment, e.g. automatic doors)       4.0 LE, range: 10-20 m         I/Os       USB and Ethernet         Safety sensors       SICK laser scan	Speed and performance	
Maximum grade increase  Turning radius (without trolley)  Swinging radius (with trolley)  Positioning accuracy (placing trolley)  Eattery  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  Positioning  Positioning  Positioning accuracy (placing trolley)  ### 15°C to 50°C (humidity 10-95% non-condensing)  Positioning  ### 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  ### 100-230 V ac, 50-60 Hz / Output: 24 V, max 1	Running time	8-10 hours or 15-20 km (depending on load)
Turning radius (without trolley)  Swinging radius (with trolley)  Positioning accuracy (placing trolley)  Eattery  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  Positioning accuracy (placing trolley)  Environment  Ambient temperature range  Positioning time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  Positioning time: up to 3 hours (0-80%: 2 hours)  IP class  IP 20  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  detection of objects ahead 5-50 cm above floor  3D camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Trolley  Length  500 to 2400 mm  Width  400 to 1500 mm	Maximum speed	1.5 m/s (5.4 km/h)
Swinging radius (with trolley)  Positioning accuracy (placing trolley)  Power  Battery  Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)  Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range  IP 20  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners \$300 (2 pcs.)  30 camera Intel RealSense™ on robot  detection of objects ahead 5-50 cm above floor  Ultrasonic scanners (4 pcs.)  Total length of robot and cart plus 0.55 m  ±20 cm from center of position, 10° accuracy  ±20 cm from center of position	Maximum grade increase	5% with 200 kg load
Positioning accuracy (placing trolley)  #20 cm from center of position, 10° accuracy  #21 cm from center of position, 10° accuracy  #22 cm from center of position, 10° accuracy  #23 cm from center of position, 10° accuracy  #24 cm from center of position, 10° accuracy  #25 cm from center of position, 10° accuracy  #26 cm from center of position from condensing  #27 cm from center of position from condensing  #28 cm from center of position from center of position from center of position from center of position	Turning radius (without trolley)	0.83 m (around center of robot)
Battery Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours) Internal charger Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range +5°C to 50°C (humidity 10-95% non-condensing) IP class IP 20  Communication  WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors) I/Os USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.) 360° visual protection around robot 3D camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor 3D camera Intel RealSense™ on front of hook detection of objects ahead up to 200 cm above floor Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width	Swinging radius (with trolley)	Total length of robot and cart plus 0.55 m
Battery	Positioning accuracy (placing trolley)	±20 cm from center of position, 10° accuracy
Internal charger  Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A  Environment  Ambient temperature range	Power	
Environment  Ambient temperature range	Battery	Li-NMC, 24 V, 40 Ah; charging time: up to 3 hours (0-80%: 2 hours)
Ambient temperature range	Internal charger	Input: 100-230 V ac, 50-60 Hz / Output: 24 V, max 15 A
IP class  Communication  WiFi  Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  3D camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Trolley  Length  500 to 2400 mm  Width  4.0 LE, range: 10-20 m  4.0 L	Environment	
WiFi Dual-band wireless AC/G/N/B  Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.) 360° visual protection around robot  3D camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor  3D camera Intel RealSense™ on front of hook detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width 400 to 1500 mm	Ambient temperature range	+5°C to 50°C (humidity 10-95% non-condensing)
WiFi Dual-band wireless AC/G/N/B   Bluetooth (for peripheral equipment, e.g. automatic doors) 4.0 LE, range: 10-20 m   I/Os USB and Ethernet   Safety sensors SICK laser scanners \$300 (2 pcs.) 360° visual protection around robot   3D camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor   3D camera Intel RealSense™ on front of hook detection of objects ahead up to 200 cm above floor   Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors   Trolley Length 500 to 2400 mm   Width 400 to 1500 mm	IP class	IP 20
Bluetooth (for peripheral equipment, e.g. automatic doors)  I/Os  USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  3D camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Trolley  Length  500 to 2400 mm  Width  4.0 LE, range: 10-20 m  4.0 LE, range: 10-20 m  4.0 LE, range: 10-20 m	Communication	
I/Os USB and Ethernet  Safety sensors  SICK laser scanners S300 (2 pcs.) 360° visual protection around robot  3D camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor  3D camera Intel RealSense™ on front of hook detection of objects ahead up to 200 cm above floor  Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width 400 to 1500 mm	WiFi	Dual-band wireless AC/G/N/B
Safety sensors  SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  3D camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Camera Intel RealSense™ on front of hook  Different detection of objects ahead up to 200 cm above floor  detection of transparent objects ahead, e.g. glass doors  Trolley  Length  Soo to 2400 mm  Width  400 to 1500 mm		4.0 LE, range: 10-20 m
SICK laser scanners S300 (2 pcs.)  360° visual protection around robot  3D camera Intel RealSense™ on robot  3D camera Intel RealSense™ on front of hook  Ultrasonic scanners (4 pcs.)  Trolley  Length  500 to 2400 mm  Width  360° visual protection around robot  detection of objects ahead 5-50 cm above floor  detection of objects ahead up to 200 cm above floor  detection of transparent objects ahead, e.g. glass doors  7 by the state of the stat	I/Os	USB and Ethernet
3D camera Intel RealSense™ on robot detection of objects ahead 5-50 cm above floor  3D camera Intel RealSense™ on front of hook detection of objects ahead up to 200 cm above floor  Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width 400 to 1500 mm	Safety sensors	
3D camera Intel RealSense™ on front of hook detection of objects ahead up to 200 cm above floor  Ultrasonic scanners (4 pcs.) detection of transparent objects ahead, e.g. glass doors  Trolley  Length 500 to 2400 mm  Width 400 to 1500 mm	SICK laser scanners S300 (2 pcs.)	360° visual protection around robot
Ultrasonic scanners (4 pcs.)  Trolley  Length  Width  detection of transparent objects ahead, e.g. glass doors  500 to 2400 mm  400 to 1500 mm	3D camera Intel RealSense™ on robot	detection of objects ahead 5-50 cm above floor
Trolley           Length         500 to 2400 mm           Width         400 to 1500 mm	3D camera Intel RealSense <sup>™</sup> on front of hook	detection of objects ahead up to 200 cm above floor
Length         500 to 2400 mm           Width         400 to 1500 mm	Ultrasonic scanners (4 pcs.)	detection of transparent objects ahead, e.g. glass doors
Width 400 to 1500 mm	Trolley	
	Length	500 to 2400 mm
Height 200 to 2000 mm	Width	400 to 1500 mm
	Height	200 to 2000 mm

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## **MìR**Hook<sup>™</sup> Data Sheet

## MiRHook dimensions

MiRHook EN 01 2017





