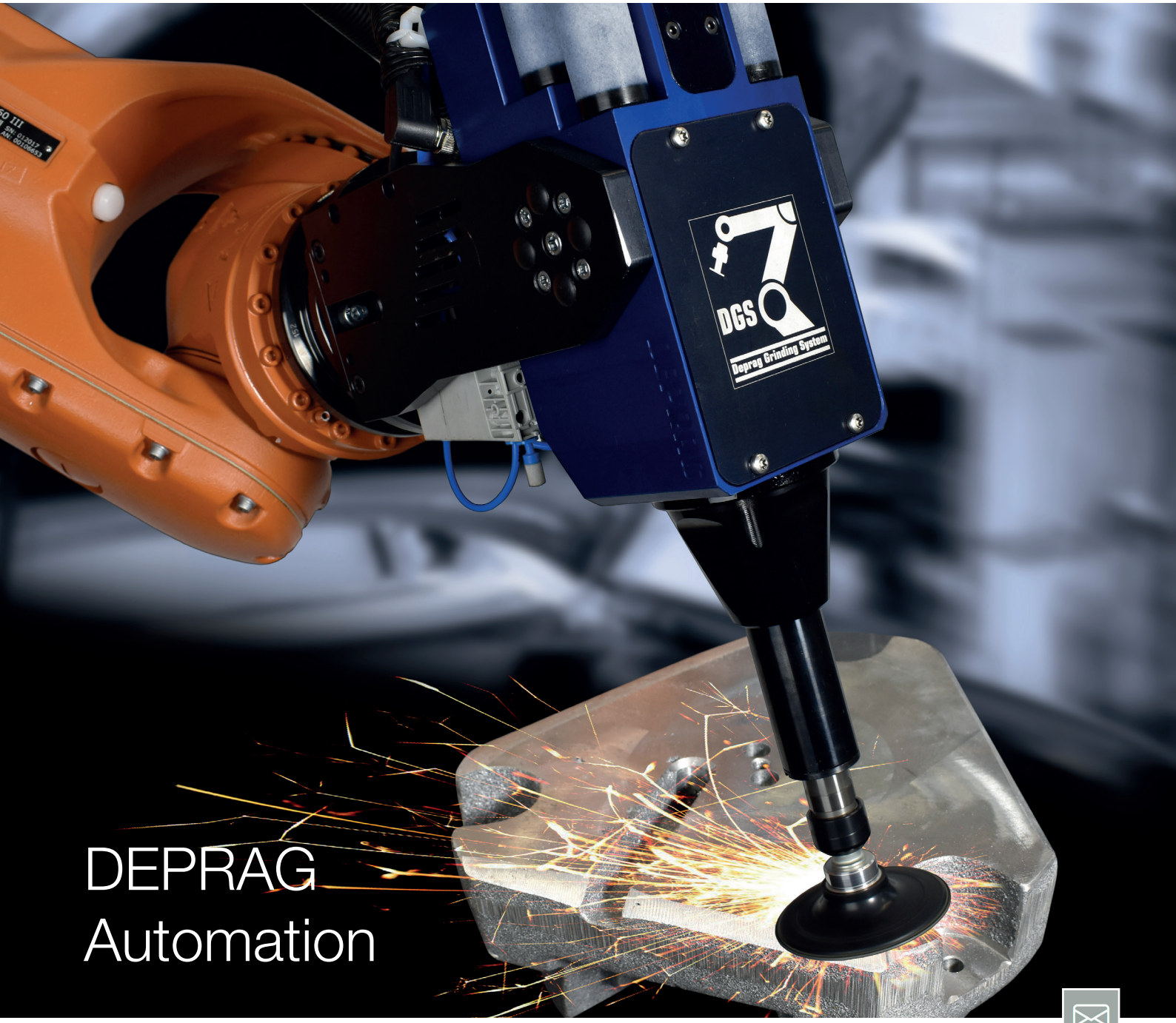
DEPRAG Grinding System (DGS)

DEPRAG
machines unlimited



DEPRAG Automation

The DEPRAG Grinding System (DGS) is a high-performance robotic grinding system for grinding, deburring, and polishing. As a manufacturer of complete grinding units, DEPRAG delivers maximum process reliability, from the tool to the complete automation solution.

- **In-house development & manufacturing**
- **Efficient material removal for industrial applications**
- **Stable grinding processes through controlled contact pressure**
- **Basis for complete grinding cells from a single source**

DGS as a system solution for robotic grinding

The DEPRAG Grinding System is ideally suited for applications requiring high material removal rates, stable cycle times, and reproducible surfaces. Typical applications include deburring weld seams, parting lines, and functional surfaces, as well as machining castings, welded assemblies, or plastic molded parts

The key added value lies in the system‘s depth: DEPRAG develops and manufactures the grinding spindle itself. This gives us 100% knowledge of the tool and allows us to reliably combine it with automation, power guidance, and peripherals. This reduces scrap and rework while simultaneously increasing efficiency and workplace safety.

Upon request, we can implement DGS not only as a component, but as part of a complete grinding cell including robot, control system, safety concept and commissioning.

Your advantages with the DGS

- **High material removal rate:**
  For deburring welds, separation joints and functional surfaces, e.g. on castings or pressed parts.
- **Consistent process quality:**
  Reproducible results independent of external influences such as wear.
- **Less rework, less scrap:**
  Stable force guidance reduces deviations and improves quality.
- **One single source for robotic grinding:**
  Grinding spindle, system technology and automation optimally coordinated.

Technical highlights of the DGS

- Controlled contact force in the range of 5 – 300 N
- Speed range 4,500 – 30,000 rpm
- Designed for automated quality control and process control
- Optional use of control/sequence logic for process stabilization
- Can be integrated into robotic cells and automation solutions
- Compatible with KUKA, Fanuc, ABB, Yaskawa, and others.

Efficiently automate grinding processes

Manual grinding is a bottleneck in many companies: It is difficult to reproduce, time-consuming, and ergonomically demanding. The DGS replaces these tasks with a stable, automated process. Ideal for series production and high-volume applications

Thanks to its own spindle expertise, DEPRAG knows the tool down to the last detail and can optimally design it for the respective application in combination with automation and process control.

- **Deburring & Grinding**
  For robust applications in foundries, welding shops and press shops.
- **Polishing & Finishing**
  For defined surfaces on functional or visible areas.
- **Complete grinding cells**
  From design to commissioning – all from a single source.

Have a DGS designed for your application
We can assist you with everything from the design of the spindle, tooling, and process control to the complete grinding cell. Let’s talk.

Technical data DEPRAG Grinding System (DGS)				
Grinding system	**Type**	**RMA100-190BTC**	**RMA100-190BT1/4“**	**RMA280**
	Part no.	**6061449F**	**6061449C**	**6061507A**
Rotation direction		clockwise		
Clamping tool		Collet	UNC 1/4“-20	M14
Speed (idle) *	rpm	19000	19000	10200
Power max.	W	1000	1000	2800
Air consumption (idle)	m³/min	0.7	0.7	0.9
Air consumption (under load)	m³/min	1.1	1.1	3
Contact pressure	N	5 - 45	5 - 45	5 - 135
Working stroke max.	mm	18	18	28
Operating pressure max.	bar	6.3	6.3	6.3
Feed hose (inner diameter)	mm	12.5	12.5	19
Noise pressure level L_{pA}	dB	75.7	75.7	-
Noise power level L_{WA}	dB	86.7	86.7	-
Weight	kg	4.8	4.8	20.6
Measuring probe for active surface measurement system		no	no	yes
Included in delivery				
Nipple		6074950	6074950	6074950
Pin UNC1/4“-20		-	6023363	-
Pin d6		6024075	-	-

We can accommodate other speeds—please contact us.

Nipple 6074950
(for air connection)

Pin 6023363
(for setting reference points)

Pin 6024075
(for setting reference points)

Spindle
The RMA spindle features a 1/4“-20 UNC thread, to which the rubber grinding discs with sandpaper are attached.
The spindle version with a collet is designed for abrasives with a shaft.
The RMA 280 grinding system is equipped with an M14 thread.

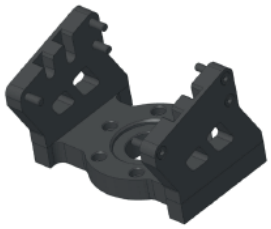
Threaded version

Collet version

Required accessories suitable for type		RMA100-190BTC	RMA100-190BT1/4“	RMA280
Bracket with flange	Part no.	6022788A	6022788A	6023566A
COM module	Part no.	6023863A	6023863A	6023863A
Electronic control unit	**Type**	**RMC1-100**	**RMC1-100**	**RMC1-100**
	Part no.	6063009A	6063009A	6063009A
		Technical data RMC1-100:		
		Power supply	20.4 - 28.8 VDC	
		Power	1.2 A	
		Energy consumption	28.8 W	
		EA interface	SUB-D 9-pin (female connector). 3x 3-pin (female connector)	
		Dimension (WxHxD)	600 mm x 380 mm x 210 mm	
		Mounting dimensions	340 mm x 560 mm	
		Weight	19.2 kg	
Required accessories for the electronic control unit Software RMC		6029248		

Bracket with flange
The RMA drive is mounted on the robot using appropriate brackets. The design of the bracket can be customized, for example, with regard to the position of the drive relative to the robot flange, as well as different screw spacing for attaching peripherals to the robot flange.

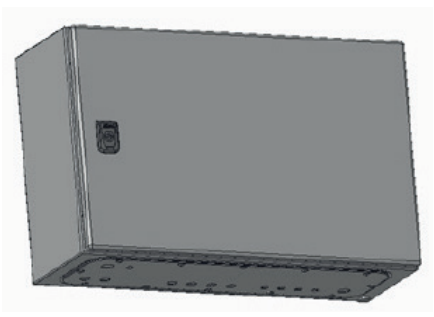
Bracket with flange ISO 9409-1 d100 (6022788A)



Bracket with flange ISO 9409-1 d100 (6023566A)

COM e and electronic control unit RMC1-100
COM module with integrated proportional valves for electronic pressure control and a bus system for a so-called one-wire connection.
The electronic control unit manages the sequence controller of the RMA drive.

COM module 6023863A



Electronic control unit RMC1-100 6063009A

RMC1-100 – Intelligent sequence controller
RMC is the central sequence controller for DAS adaptive flanges and DGS robotic heads. RMC ensures continuous, precise regulation of the clamping force and enables automatic repositioning of the adaptive flange component or the extendable spindle. Based on current values, RMC provides precise feedback on the actual force applied or the clamping pressure of the tool and detects potential error conditions early on.

- Reliable communication with adaptive flange and robot head factors
- Continuous and precise control of contact forces
- Real-time information on the position of the compensated spindle section
- Clear display of the current operating status
- Connection to higher-level controllers via ProfiNet, EtherCAT, and others
- Convenient basic setup and adjustment of predefined parameters via the VISUalization Online website (including service and programming menus)
- Automatic weight compensation of the machining tool in various positions and rotational movements

In addition, RMC enables the integration of additional peripheral devices—for example, to control spindle startup or to store sensor calibration values. A particular highlight is the integrated weight compensation for the tool in use, which ensures consistently precise force control regardless of position or orientation.
Thanks to the modular, expandable communication module with EtherCAT-P, the system can be flexibly expanded—for example, by integrating additional system components such as an incremental sensor.

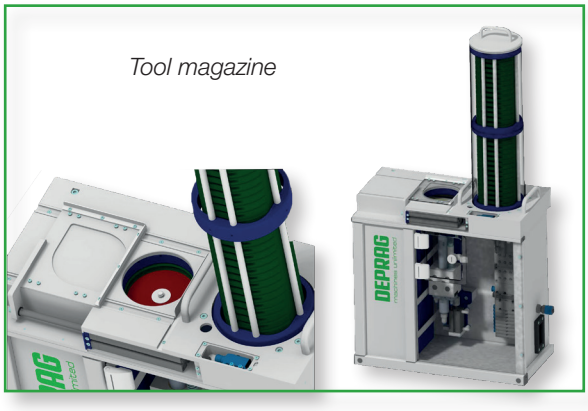
Optional accessories for DEPRAG Grinding System (DGS)		
Measuring device	Part no.	6024051A
Maintenance unit	Part no.	3029218A
Air connection G3/4 DN16 swiveling	Part no.	6078629

Automatic tool change		
Tool magazine	Part no.	6028037C for 75 mm discs (30 disc holders)
Spare parts for this		
Pressure disc	Part no.	6028137
Tool holder	Part no.	6023312

Automatic tool change

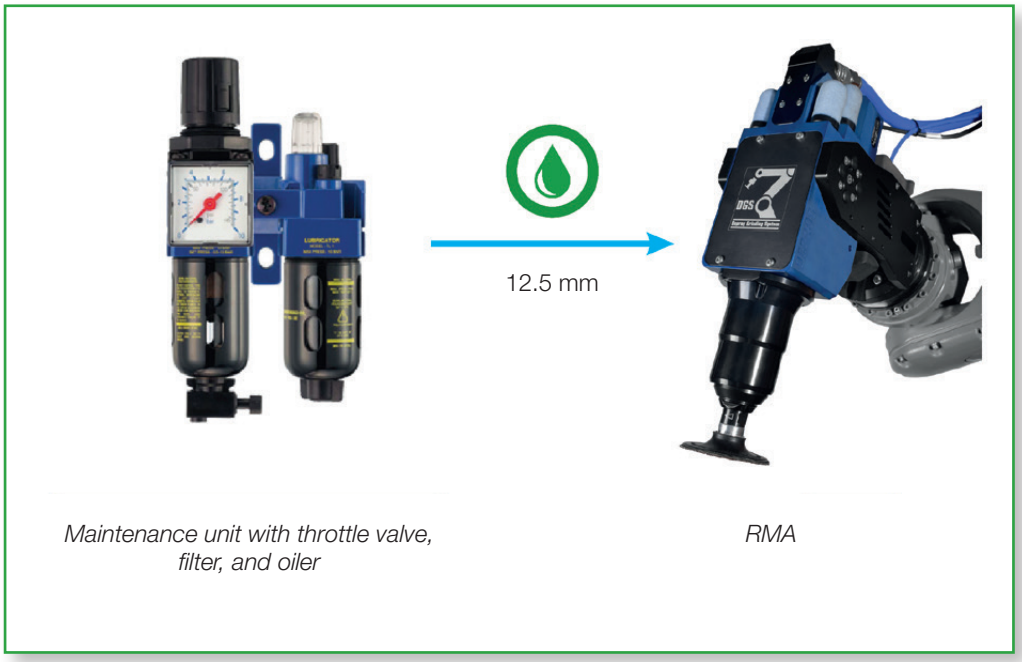
Greater automation through intelligent tool management

The solution enables a smooth, efficient tool-changing process and reduces manual intervention to a minimum.
We offer customized solutions for a wide variety of abrasive tools — including individual grinding discs — and optimally adapt the system to your specific application.
The system is designed for reliable 24/7 continuous operation and ensures maximum process reliability even under demanding conditions.
Thanks to its user-friendly design, it also impresses with simple operation and low-maintenance performance.



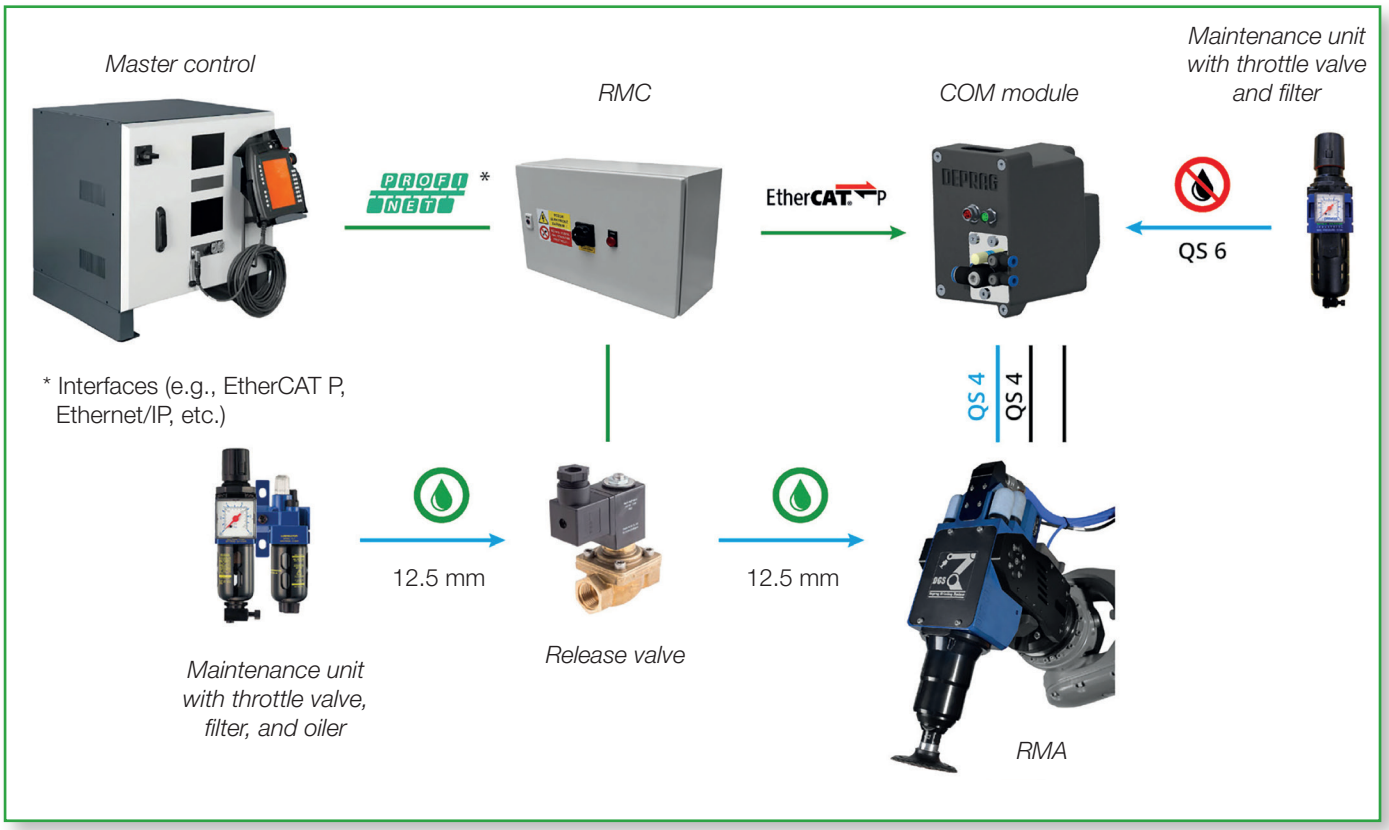
RMA connection option 1

- For applications requiring constant force, without the ability to actively control or measure it
- Connection to the pressure-reducing valve, where the pressure setting for the cylinder force is adjusted

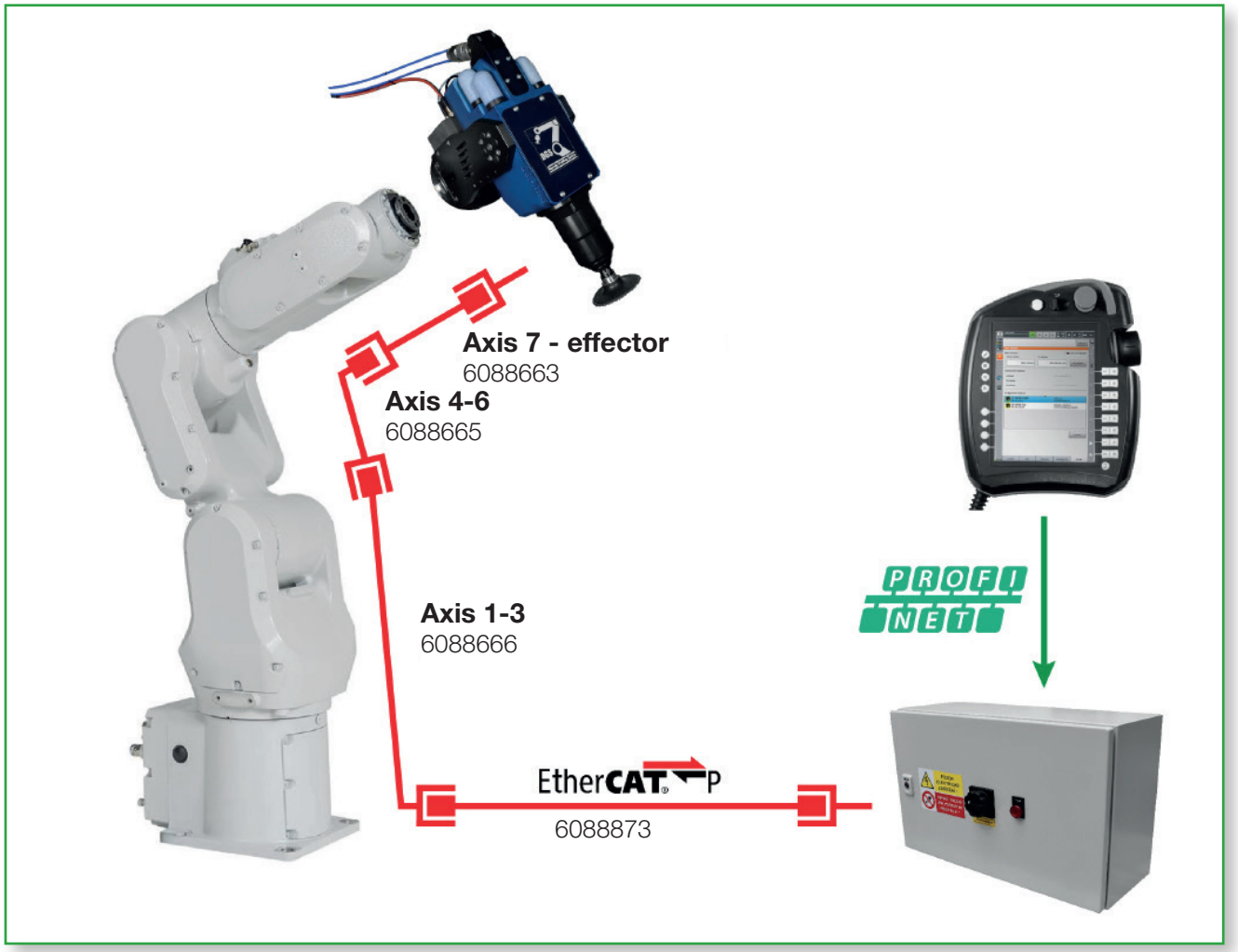


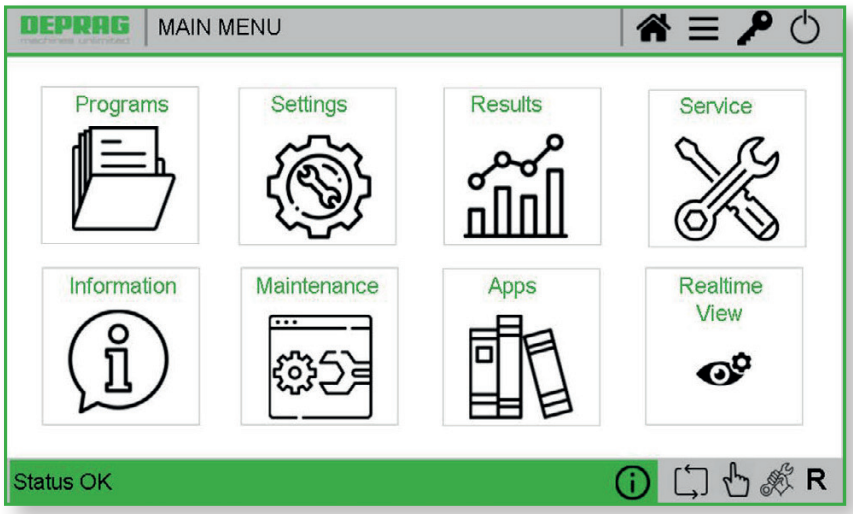
RMA connection option 2

- RMA100 drive with integrated sequence controller DEPRAG RMC
- Web visualization interface
- Gravity compensation



Connection example - Sample cable diagram





Online-HMI – visualization
Independent user interface provided via the sequence controller‘s internal web server.

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