

OUR PERFORMANCE makes THE DIFFERENCE

SMART SYSTEMS. FOR EFFICIENT WORKING.

FLEXIBLE POSITIONING

DEMMELER Manipulators

ERGONOMIX M: UNIQUE SWIVEL RANGE UP TO 180 DEGREES





# **Outstanding working environment** with all the freedom you need

Ladies and gentlemen, business partners and customers,

We are delighted to be able to present our up-to-date, newly developed range of handling devices to you in this catalogue.

As a family-run manufacturing company operating in the mechanical engineering field, we face new challenges every day in the worlds of welding, assembly and machining. At the same time, we are fully aware of our economic and social responsibilities in our dealings with our customers, partners and employees. We are absolutely committed to Germany as a centre of technology and we manufacture all our products at our headquarters in Heimertingen.

Alongside its many advantages, however, we are also aware of the challenges posed by our production location. High wage levels, a constantly ageing population, together with price and cost pressures, mean that continuous process optimization is essential.

Of course, you, too, are also perfectly familiar with these issues. One reason for our great innovative strength and quality consciousness is that we use our products ourselves.

They form the basis for our business success. That is why we have developed our manipulators – just like all our other products – in the light of the following criteria:

- + Cut production costs
- + Improve quality
- + Enhance ergonomics
- + Improve safety at work

By using our products, you, too, can benefit from these four factors of success. Your customers and employees will tell you you have made the right decision!

I hope you enjoy reading and discovering our manipulator catalogue. If you have any questions or individual issues to discuss, our sales team will be delighted to advise you — wherever you are in the world! Because there is one thing we know for sure: "Our success depends on your success!"

Yours Johannes Demmeler
Managing Director Executive Partner







## Our specialists in precise positioning

Work pieces to 40,000 kg lifting, turning, tilting





Winner of the German federal prize for innovative performance in the trade

#### **Ergonomix M**

- · Maximum work area with minimized footprint
- Low installation height
- Unique swivel range up to 180°
- · Comfortable work
- High flexibility

Lifting / turning / tilting

Tilting from 0° to 180°

Bearing load up to 8,000 kg

From page 10





Demmeler Maschinenbau

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## **DEMMELER Manipulators**

Excellent posture and maximum productivity

#### Increase the quality level

- Working in the ideal position and at the ideal height
- Less welding distortion through optimised welding sequences
- Consistent quality with optional teaching function to save reproducible sequences

#### Protection of health and safety

- Avoidance of overloading and poor posture, which means less staff absenteeism
- · Ergonomically-optimised work environment
- Employees with physical constraints can perform tasks that they could not perform without the manipulator (possibly investment aid possible by means of funding)
- Dangerous handling of work pieces with a crane is significantly reduced

#### **Increased productivity**

- Multiple, time-consuming rotating and turning of the work pieces, for example with a crane, is eliminated for a major reduction in non-productive time and a significant increase in productivity
- Higher melting deposition efficiency when welding as most seams can be performed in the optimal position (flat position)
- Higher work performance due to fatigue-free working position









### **Unlimited opportunities**

Manipulators in tough everyday working conditions

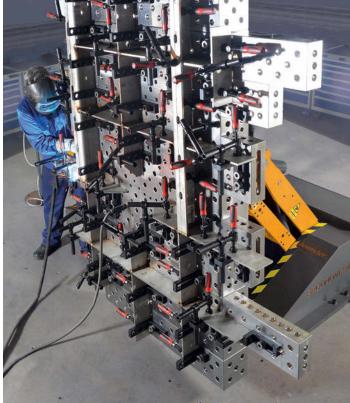


#### Welding and assembly - Simple, rapid work piece positioning

The size and bulkiness of work pieces often create difficulties during welding, because not all points can be seen well. However, an optimal overview is a prerequisite for clean and error-free work. Due to their dimensions, work pieces must be moved several times during the work process with a heavy device, usually with a crane. Reduce this safety risk with the manipulator from DEMMELER. The manipulator is a kind of lifting platform on which work pieces can be machined directly. You can extend the manipulator by the DEMMELER 3D Okto Table. This gives you a working surface that is precisely adapted to your work pieces. The fact that all locations are easily accessible simplifies welding, measuring and assembling.











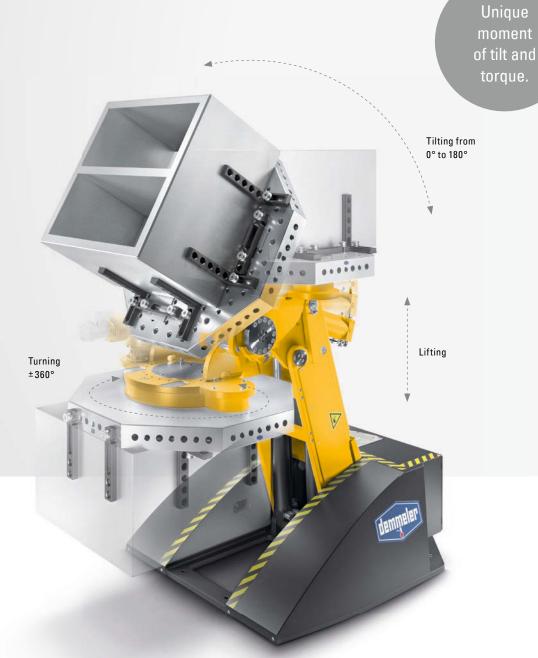
Since the tiltable manipulator can be adjusted in height and angle at the push of a button, you create an ergonomic working environment and avoid health problems for your employees with this handling device. The profitability and quality of your products are also increased significantly by using the manipulator. The manipulator allows for very precise work with an optimised welding sequence, which considerably reduces the welding distortion rate. In addition, simple and fast assembly is optimally possible with standard processes.

Demmeler Maschinenbau

### 2 | 3 | 4 | 8 tons

### **Manipulator Ergonomix M**

Outstanding flexibility during welding or assembly work thanks to swivel range of up to 180° as standard



#### **Benefits**

- · Large work area
- Solid construction
- · Low installation height
- Unique swivel range up to 180° as standard
- · Comfortable working
- Greater flexibility
- Improved workplace safety
- Increased productivity





DEMMELER Ergonomix M: Winner of the German federal prize for innovative performance in the trade





#### Limited space. Unlimited possibilities.

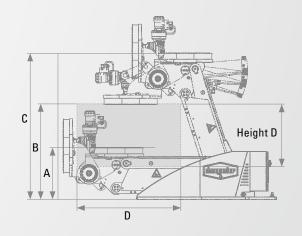
With the ingenious arrangement of the entire mechanism, the developers at DEMMELER were able to create a working space of unrivalled size combined with a small footprint for the Ergonomix M manipulator. The handling device consistently brings the highest payloads into the ideal position.

A special characteristic of the DEMMELER Ergonomix M product family is the large **swivel range of up to 180°**. This has the crucial advantage with many work pieces of being able to process them fully in one clamping cycle without turning them over. The excellent price-performance ratio of the DEMMELER products is the key feature.

#### **Exact positioning**

The movement axes bring your work piece to the desired position at the touch of a button, no matter how often the process step is repeated. To make things even easier, the manipulators can be optionally equipped with the optional teaching controller. You move to the various positions manually and save them. Then the manipulator repeats the programme as many times as you want. You thus improve your productivity and quality.

- At the same time, you eliminate repeated, time-consuming turning and rotating of the work piece, for example using a crane. This greatly reduces non-productive times and leads to significant increases in productivity.
- Higher melting deposition efficiency when welding as most seams can be performed in the optimal position (flat position).
- Simple, fast assembly in the optimum position using standard processes.



#### Ergonomix M basic model

Description		M 2000 / V1250	M 2000 / V2500	M 4000	M 8000
Bearing load (w/o worktop)	[kg]	2000	2000	4000	8000
D=max. Interference area at 180° (w/o worktop) At height	[mm] [mm]	1000 650	1000 650	1500 520	2000 600
Max. rotation speed	[RPM]	1,4	1,4	2	1.5
Min. rotation speed	[RPM]	0.75	0.2	0.2	0.2
Torque	[Nm]	1250	2500	5000	10000
Tilt angle	[°]	180	180	180	180
Moment of tilt	[Nm]	8000	8000	32000	64000
A=min. Height (w/o worktop)	[mm]	490	490	750	895
B=max. Height at 180° swivel angle	[mm]	970	970	983	1142
C=max. Height at 90° swivel angle	[mm]	1480	1480	1680	1940
Pendant control panel		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Foot pedal		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
10-speed control		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Motors / rotary axis		1	2	2	2
Item no.		M02-02000-006	M02-02000-007	M04-04000-000	M08-08000-000

Specifications without worktop. Other equipment details on request.

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### **Equipment for the Ergonomix M**

Work without compromise right from the very start

To allow you to enjoy maximum benefit from the many capabilities and advantages of your Ergonomix M, we have a range of accessory equipment for you to use. Thanks to these solutions, you will save valuable time and be able to work more comfortably and with less effort.

#### Operation with pendant control panel

- Potentiometer enabling reproducible speed settings
- Axis activation at the touch of a button
- · Cable length 5 m

#### 2 Controller in the control cabinet

- · Master switch
- · Compact construction
- · Housing integrated in the manipulator

#### 3 Operation with foot pedal

- Foot switch to control the rotation axis of the manipulator by pressing the pedal for left / right rotation
- Foot switch with emergency stop function.
   Pressing the pedal down all the way stops movement of the rotation axis immediately (panic function)
- The enabling button does not have to be pressed while controlling the rotation axis with the foot switch

#### (4) Teach controller

- Up to 100 programmes with 50 positions each
- · Operation via touchscreen
- Start movement by pressing the enabling button
- Offline programming possible
- Editing programmes in a text editor possible
- Data transfer per USB interface
- 10" display



You can move to the positions manually with the buttons and save specific positions in the work piece programme using the teach controller by pressing buttons. This results in a consistent movement sequence from one position to the next. Several different work piece programmes can be stored and called up as needed.

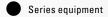


#### **Optimum extension capabilities**

Control options	M 2000 / V1250	M 2000 / V2500	M 4000	M 8000
Teach controller ④	Z00-01001-008	Z00-01001-008	Z00-01001-011	Z00-01001-012
Laser scanner, radius 3 m ⑤	Z00-01010-001	Z00-01010-001	Z00-01010-001	Z00-01010-001
Extremely fine adjustment of rotary axis (only with variable electrical drive) 0.01 - 1.5 rpm	-	Z00-01002-022	Z00-01002-022	Z00-01002-022
Increase in speed of rotary axis (only with variable electrical drive) up to 3 rpm	-	Z00-01002-031	Z00-01002-031	Z00-01002-031

Additional options	M 2000 / V1250	M 2000 / V2500	M 4000	M 8000
Rotary feedthrough for querying the state of fixtures, electrical ®	Z00-01004-005	Z00-01004-005	Z00-01004-005	Z00-01004-005
Rotary feedthrough for pneumatic clamping fixtures <b>(6)</b>	Z00-01004-008	Z00-01004-008	Z00-01004-008	Z00-01004-008
Rotary feedthrough for hydraulic clamping fixtures <sup>6</sup>	Z00-01004-009	Z00-01004-009	Z00-01004-009	Z00-01004-009
Ground connector ① max. 400 A at 60% ED	Z00-01000-002	Z00-01000-002	Z00-01000-008	Z00-01000-003
Ground connector ① max. 700 A at 60% ED	Z00-01000-009	Z00-01000-009	Z00-01000-013	Z00-01000-014
Floor plate without forklift pockets	00068212	00068212	00097630	-
Floor plate with forklift pockets	00096126	00096126	00106030	-

Select the right worktop for your manipulator from our extensive selection. See also p. 14-15. It is not included in the scope of delivery. We are happy to provide you with cutting data / connection data for customer clamping elements. All load data for the installation location are provided when you place an order.





Special equipment





5 Laser scanner

- Personnel and component protection
- Scan radius 3 m (other ranges on request)
- Clearing after area infraction by key-operated switch integrated in the control cabinet door
- · Safety zone status display in control cabinet door

#### 6 Rotary feedthroughs

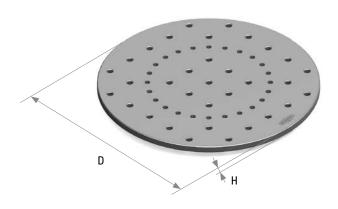
- · Rotary feedthrough for querying the state of fixtures, electrical, 10 signals, teaching controller or controller in premises required
- · Rotary feedthrough for pneumatic clamping equipment on worktop, pneumatic, 1-channel
- Rotary feedthrough for hydraulic clamping equipment on worktop, hydraulic, 1-channel

#### **7** Ground connector

Ground connector for feeding the welding ground from the table to the interface next to the control cabinet, including sliding contact and quick coupling. Dinse connection 400 A at 60 % ED, optional 700 A at 60 % ED.

## **Optional clamping solutions**

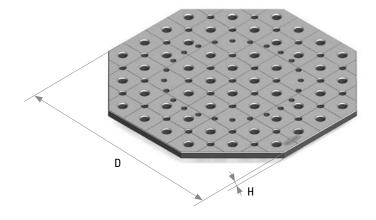
### Worktops and 3D Worktables





- Worktop with Thread M24
- Includes protective plate on the underside as collision protection

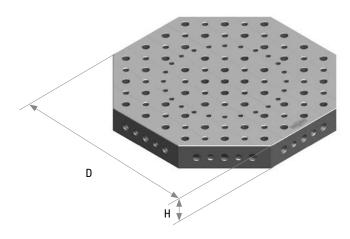
Type	D*	H*	Weight in kg	Grid	Item no.
M2000	ø800	25	110	100x100	00059396
M3000	ø 1000	25	210	100x100	00117028
M4000	ø 1000	30	210	100x100	00071838
M8000	ø 1500	45	700	100x100	00064406



#### **Clamping and Adapter Plates**

- Clamping and Adapter Plate with D28 system bores in 100 x 100 mm grid and M24 thread in diagonal grid
- Includes cover plate on the underside as collision protection

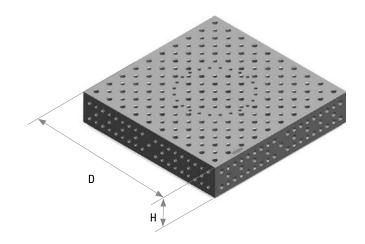
Type	D*	Н*	Weight in kg	Grid	Item no.
M2000	AF 800	25	120	100x100	D28-02001-221
M3000	AF 1000	25	270	100x100	D28-02001-471
M4000	AF 1000	30	270	100x100	D28-02001-255
M8000	AF 1500	45	620	100x100	D28-02001-251



#### 3D Worktable Okto

- 3D Worktable Okto with D28 system bores in 100 x 100 mm grid and M24 thread in diagonal grid
- Includes cover plate on the underside as collision protection

Type	D*	H*	Weight in kg	Grid	Item no.
M2000	AF 800	100	155	100x100	D28-01013-032
M3000	AF 1000	100	380	100x100	D28-01038-064
M4000	AF 1000	100	380	100x100	D28-01038-028
M8000	AF 1500	200	770	100x100	D28-12009-003



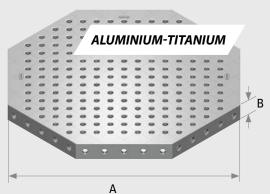
#### 3D Work and Welding Table

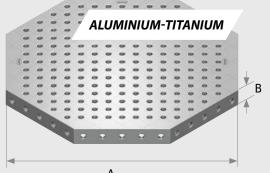
- 3D Worktable with D28 system bores in 100 x 100 mm grid and M24 thread in diagonal grid
- Includes cover plate on the underside as collision protection

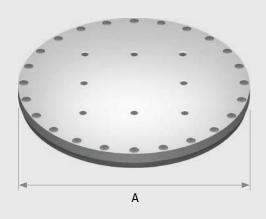
Type	D*	H*	Weight in kg	Grid	Item no.
M2000	1000x1000	200	355	100x100	D28-01001-132
M3000	1200x1200	200	540	100x100	D28-01056-064
M4000	1200x1200	200	540	100x100	D28-01056-053
M8000	1500x1500	200	675	100x100	D28-01031-071











#### 3D Okto 100 Worktable

- Preferred use with manipulators in robot cells
- Numerous clamping possibilities on all nine clamping surfaces
- In the D22 bore grid 100x100
- Diagonal boring in M16 version
- High-strength aluminium-titanium alloy for ~ 60 % weight reduction and ~ 10 % higher bending strength
- Together with Adapter Plate, with special connection drilling pattern, adapted to the face plate of your manipulator (please include manipulator type and drawing of the face plate with enquiry)

<b>A</b> *	B*	Description	Item no.
AF 600	100	Diagonal grid 100 x 100	PL22-11008-001
AF 800	100	Diagonal grid 100 x 100	PL22-01013-001
AF 1000	100	Diagonal grid 100 x 100	PL22-01038-001

#### **Adapter Plate**

- Interface element for adaptation of Okto 100 D22 3D Worktable to welding robot or manipulator
- Interface hole pattern produced in accordance with customer's wishes
- Including mounting screws

<b>A</b> *	Description	Item no.
AF 600	Adapter Plate for table AF 600	00116157
AF 800	Adapter Plate for table AF 800	00116159
AF 1000	Adapter Plate for table AF 1000	00116160

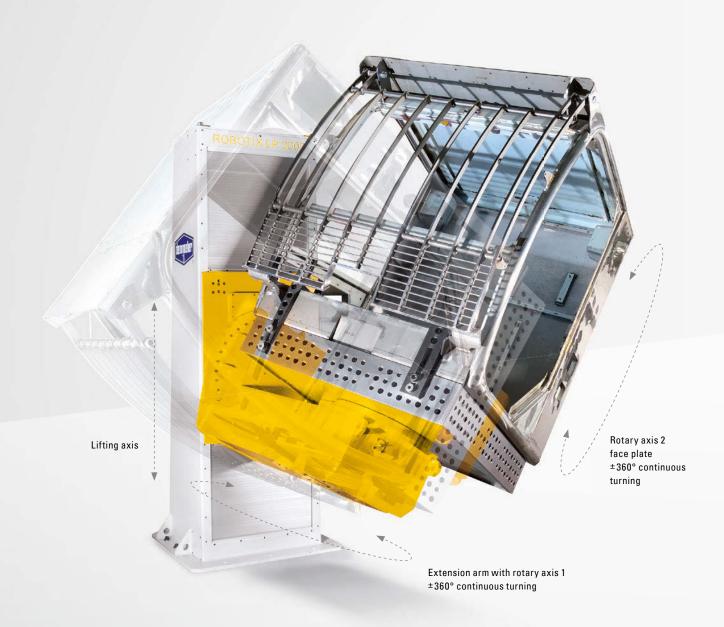
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<sup>\*</sup>Specifications in mm

### 1.5 | 3 | 6 | 10 | 20 tons

### **Manipulators Robotix LP**

### So that hard work doesn't feel hard



#### The models in the DEMMELER Robotix LP series of manipulators

Our Robotix LP series excels thanks to a range of unmissable strengths, for example a compact construction and versatility in operation. The models vary in their equipment and the available accessories. Irrespective of the solution you choose: You can be sure that every model will provide outstanding performance in compact format – just as you would expect from DEMMELER.





#### **Benefits**

- Enables positioning of work pieces with very high precision
- High repeat accuracy
- Two rotation axes and one lifting axis
- Suitable for integration in a robot cell
- Solid construction
- Lifting axis via servo-hydraulic system, speed continuously adjustable

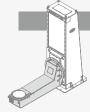


#### 1 | Robotix basic device



Description	Unit	IP 6000	IP 10000	IP 20000
Bearing load (without worktop)	kg	6000	10000	20000
Lifting axis:				
> Drive		servohydraulic	servohydraulic	servohydraulic
> Lifting speed	m/min	1.5	1.5	1
> Max. lifting height	mm	2000	2200	2450
> Minimum height	mm	820	1050	1050
> Maximum height	mm	2820	3250	3500
Rotary axis 1 / tilt axis:				
> Min max. speed	RPM	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0
> Angle of rotation	0	±360 cont.	±360 cont.	±360 cont.
> Torque	Nm	20000	24000	50000
Controller at the control console		$\checkmark$	$\checkmark$	$\checkmark$
Item no.		106-01000-100	110-01000-100	120-01000-100

#### 2 | Extension arm option



Description Extension arm for Robotix	Unit	LP 6000 Z06-01000-000	LP 10000 Z10-01000-000	LP 20000 Z20-01000-000
> Maximum interference area diameter	mm	5000	5500	6500

### 3 | Rotary axis 2 on extension arm option



<u> </u>				
Description	Unit	LP 6000	LP 10000	LP 20000
Rotary axis 2		Z06-01000-001	Z10-01000-001	Z20-01000-001
> Min max. speed	RPM	0.2 - 1.4	0.2 - 1.4	0.2-0.75
> Angle of rotation	0	360	360	360
> Torque	Nm	10000	15000	40000
> D=max. interference area	mm	5000	6000	6000

Adapter plates for L-manipulators on request (see page 14/15 for version). Other equipment details on request.

### **Equipment for the Robotix series**

### Stress-free work from the very beginning

#### Controller at the control console

- Master switch
- · Compact construction
- Housing integrated in the manipulator
- Potentiometer enabling reproducible speed settings
- · Axis activation at the touch of a button

#### 2 Laser scanner

- · Personnel and component protection
- Scan radius 3 m (other ranges on request)
- Clearing after area infraction by key-operated switch integrated in the control cabinet door
- · Safety zone status display in control cabinet door

#### (3) Rotary feedthroughs

- Rotary feedthrough for querying the state of fixtures, electrical,
   10 signals, teaching controller or controller in premises required
- Rotary feedthrough for pneumatic clamping equipment on worktop, pneumatic, 1-channel
- Rotary feedthrough for hydraulic clamping equipment on worktop, hydraulic, 1-channel



#### **Optimum extension capabilities**

Control options	LP 6000	LP 10000	LP 20000
Laser scanner ②	Z06-01000-101	Z10-01000-101	Z20-01000-101
Teach controller ⑤	Z06-01000-102	Z10-01000-102	Z20-01000-102
Connection as additional robot axis	Z06-01000-103	Z10-01000-103	Z20-01000-103

Series equipment

Special equipment





#### 4 Ground connector

Ground connector for feeding the welding ground from the table/fixture setup to the interface next to the control cabinet, including sliding contact and quick coupling.

#### 5 Teach controller

- Up to 100 programmes with 50 positions each
- Touch screen operation
- Start movement by pressing the enabling button
- Offline programming possible
- Editing programmes in a text editor possible
- Data transfer per USB interface
- 10" display

You can move to the positions manually with the buttons and save specific positions in the work piece programme using the teach controller by pressing buttons. This results in a consistent movement sequence from one position to the next. Several different work piece programmes can be stored and called up as needed.



Additional options	LP 6000	LP 10000	LP 20000
Rotary feedthrough for querying the state of fixtures, electrical $\ensuremath{^{\circlearrowleft}}$	Z06-01000-104	Z10-01000-104	Z20-01000-104
Rotary feedthrough for pneumatic clamping fixtures ③	Z06-01000-105	Z10-01000-105	Z20-01000-105
Rotary feedthrough for hydraulic clamping fixtures ③	Z06-01000-106	Z10-01000-106	Z20-01000-106
Ground connector for welding device ④	Z06-01000-107	Z10-01000-107	Z20-01000-107

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### 12 | 20 | 40 tons

## **Manipulator Robotix IP** When you have something

big in mind

#### Stress-free assembly and efficient welding

Those who think in big dimensions need equipment that offers numerous possibilities. With the Robotix IP manipulator, you can position your work pieces flexibly, manufacture efficiently and work ergonomically. In a relaxed posture, a welding seam can be welded far more exactly. Optimum positioning of the work piece also enables an ideal production process: No flowing of the welding material.

We offer the right product for you out of numerous solutions.

> On request, we design, construct and produce individualized clamping devices for you



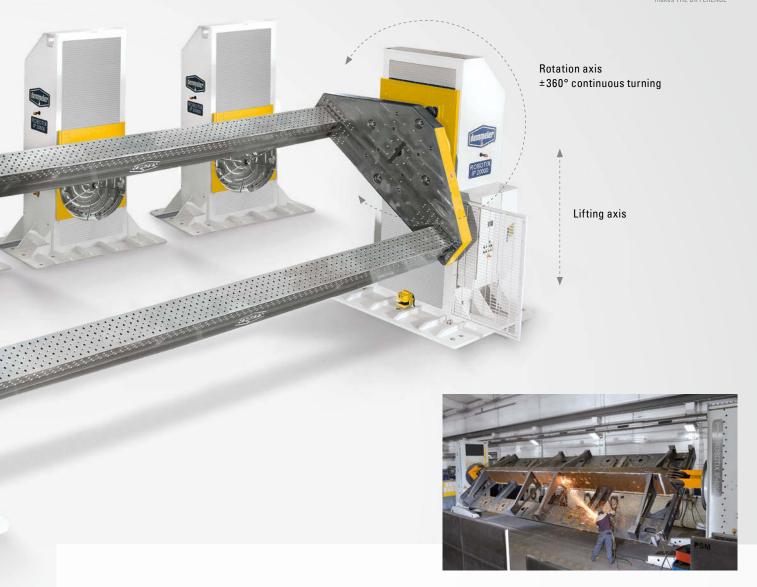




#### **Robotix basic device**

Description	Unit	IP 12000	IP 20000	IP 40000	
Bearing load (without worktop)	kg	12000	20000	40000	
Lifting axis:					
> Drive		servohydraulic	servohydraulic	servohydraulic	
> Lifting speed	m/min	1.5	1.5	1	
> Max. lifting height	mm	2000	2200	2450	
> Minimum height	mm	820	1050	1050	
> Maximum height	mm	2820	3250	3500	
Rotary axis 1 / tilt axis:					
> Min max. speed	RPM	0.2 - 1.0	0.2 - 1.0	0.2 - 1.0	
> Angle of rotation	0	±360 cont.	±360 cont.	±360 cont.	
> Torque	Nm	20000	24000	50000	
Controller at the control console		$\checkmark$	$\checkmark$	$\checkmark$	



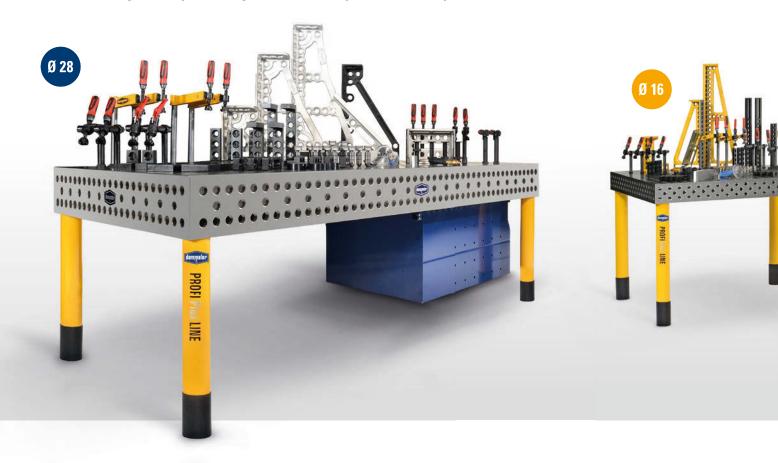


### **Optional equipment**

Control options	IP 12000	IP 20000	IP 40000
Teach controller	Z06-W1000-102	Z10-W1000-102	Z20-W1000-102
Laser scanner	Z06-W1000-101	Z10-W1000-101	Z20-W1000-101
Connection as additional robot axis	Z06-W1000-103	Z10-W1000-103	Z20-W1000-103
Counterpiece for rotary axis 1	Z06-W1000-108	Z10-W1000-108	Z20-W1000-108
	ID 40000	ID 00000	ID 40000
Positioning options	IP 12000	IP 20000	IP 40000
Preparation for assembly on DEMMELER track system for each lifting column	Z06-W1000-109	Z10-W1000-109	Z20-W1000-109
DEMMELER track system (per metre)	D28-W2003-000	D28-W2003-000	D28-W2003-000
Additional options	IP 12000	IP 20000	IP 40000
Rotary feedthrough for querying the state of fixtures, electrical	Z06-W1000-104	Z10-W1000-104	Z20-W1000-104
Rotary feedthrough for pneumatic clamping fixtures	Z06-W1000-105	Z10-W1000-105	Z20-W1000-105
Rotary feedthrough for hydraulic clamping fixtures	Z06-W1000-106	Z10-W1000-106	Z20-W1000-106
Ground connector for welding device	Z06-W1000-107	Z10-W1000-107	Z20-W1000-107

### The optimum 3D worktable for every application –

the intelligent system grids boost productivity



#### SYSTEM SIZES AND PRODUCT BENEFITS OF THE DEMMELER 3D CLAMPING SYSTEM!

With our 3D clamping system, you have the right solution at hand to overcome any challenge for clamping, turning and positioning work pieces. Optimum positioning of the work piece not only makes work more accurate but also more effective. In particular, the intelligent system grid and selection of flexible, sophisticated clamping tools offer unlimited clamping possibilities for you. Products from the original DEMMELER 3D clamping system set themselves apart with extreme robustness and durability. Our 3D welding tables have the best surface characteristics and a hardness of up to 860 Vickers thanks to the special, optimised DEMONT hardening process — making them even more wear-resistant and durable.

#### For delicate applications

#### D16 PROFIPIUSLINE (PL)

- Diagonal grid 50 × 50 mm
- 3-row bore pattern on the table side plates, 50 mm grid in the top, middle and bottom row

### D16 PROFIECOLINE (PE)

- Grid 50 x 50 mm
- 3-row bore pattern on the table side plates, 50 mm grid in the top, middle and bottom row

#### For light and medium-duty applications



- Grid 50 x 50 mm
- 3-row bore pattern on the table side plates,  $50 \times 50 \text{ mm}$  diagonal grid

### D22 PROFIPIUSLINE (PL)

- Diagonal grid 100 × 100 mm
- 2-row bore pattern on the table side plates,
   50 mm grid















Precision scaling



Protective countersink



Additional bores



Leg with sleeve



As the inventor of the modular 3D welding table and clamping systems, we shape our development and innovation around the modular clamping and manipulation of components. Our general catalogue comprises 620 pages and offers a complete overview of our entire product line with many interesting example applications.

**THE GENERAL** CATALOGUE FROM DEMMELER IS AVAILABLE IN 13 DIFFERENT LANGUAGES: **DOWNLOAD OR** REQUEST NOW

#### For everyday, large welded constructions



- Grid 50 x 50 mm
- 3-hole drilling pattern in the table side plates, 50 mm grid in the top and bottom rows with additional 100 mm grid in the middle



### D28 PROFIPIUSLINE (PL)

- Diagonal grid  $100 \times 100$  mm
- 3-hole drilling pattern in the table side plates, 50 mm grid in the top and bottom rows with additional 100 mm grid in the middle



### D28 PROFIECOLINE (PE)

- Grid 100 x 100 mm
- 3-hole drilling pattern in the table side plates, 50 mm grid in the top row with additional 100 mm grid in the middle and bottom rows



### D28 HobbyLINE (H)

- Grid 100 x 100 mm
- Worktop approx. 25 mm high with system bores in a 100 mm x 100 mm grid





**OUR PERFORMANCE** makes THE DIFFERENCE

3D WELDING TABLES **MANIPULATORS** NC ROTARY AND TURNING TABLES **TOOL ARENAS CONTRACT MANUFACTURING** 













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