Technology that inspires

PRODUCT RANGE

Mechanics | Software | Electronics

Excerpt of the WEISS Product Range

TR ROTARY INDEXING RING

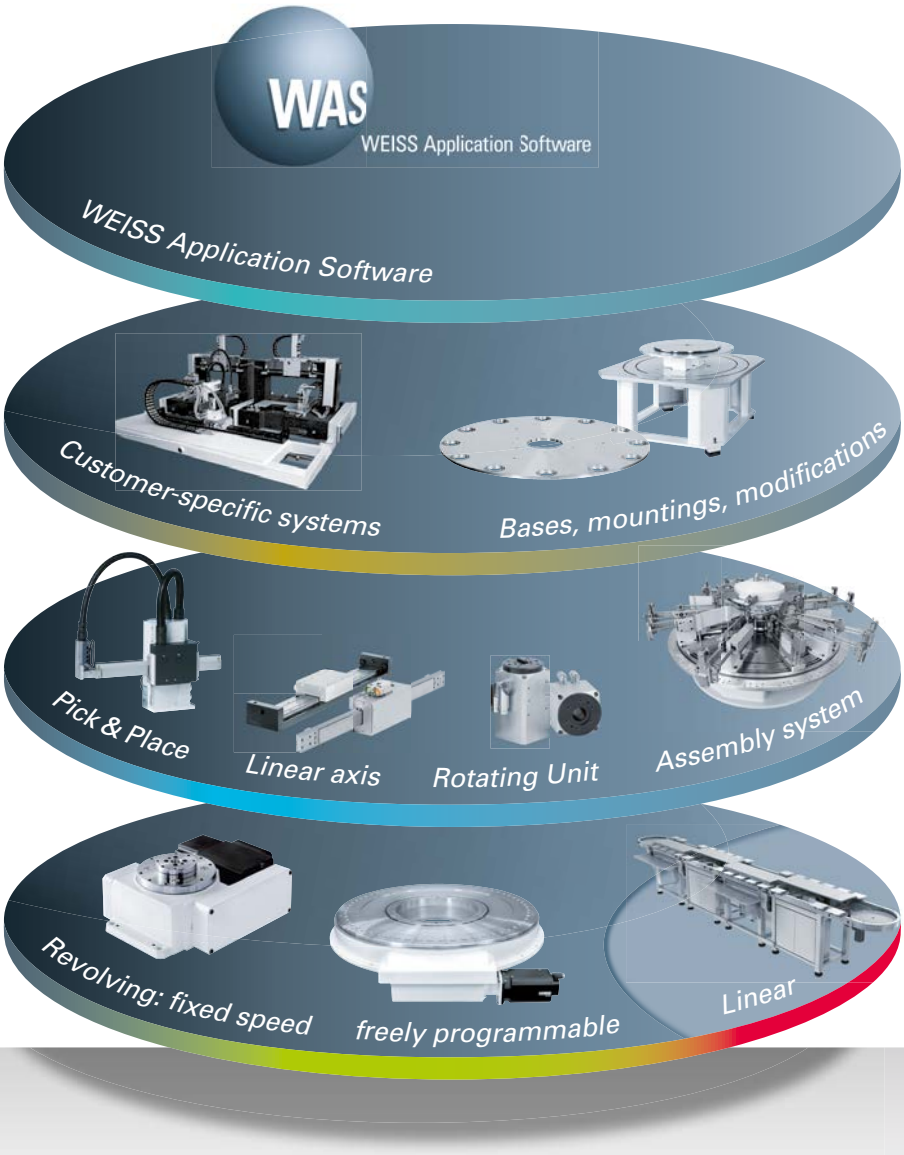
fixed speed

4 I would like to commission my installation quickly and efficiently

3 I require machine frames, mounting bases or custom equipment

2 I require handling components

1 My transport is...



Four steps to perfect automation

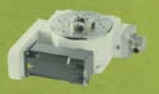
Fixed position rotary indexing tables


TC

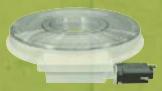

TR

TC rotary indexing table
TR rotary indexing ring

User-programmable rotary indexing tables


NC


NR


CR


TO


TW

NC rotary indexing table NR rotary indexing ring
CR/TH heavy duty ring TO torque rotary indexing table
TW rotary indexing table

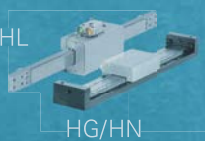
Linear assembly system


LS

LS 280

Handling module

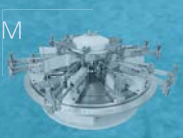

HP


HL


HG/HN

ST/SW


SH


PM

HP Pick&Place HL Linear axis
HG/HN Linear axes ST/SW rotary unit
SH Lifting-rotating unit PM Pick-o-Mat

Customer specific solutions

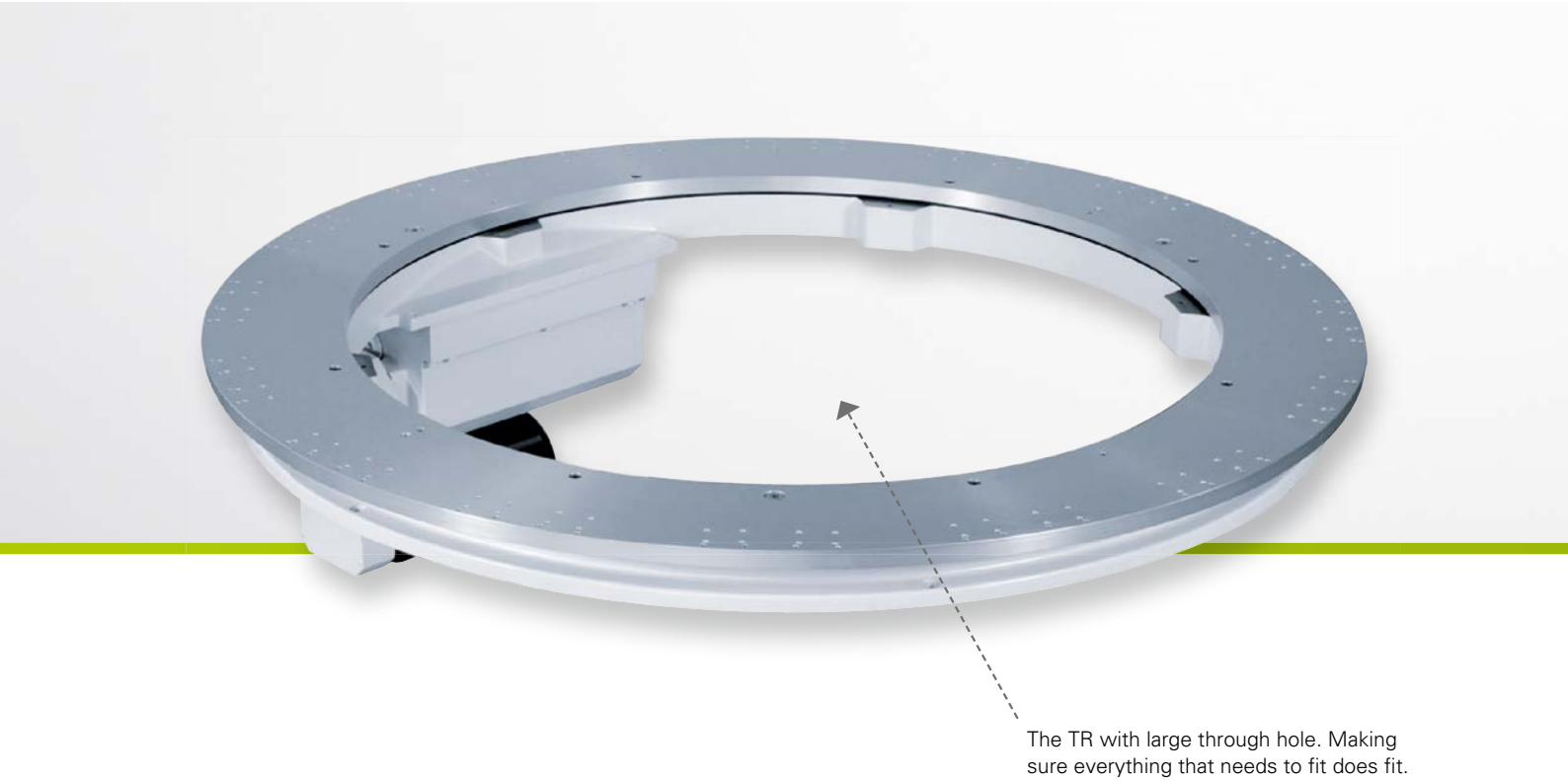

Plates


SK

SR/SK indexing machine bases
Additional indexing plate

WAS-Software

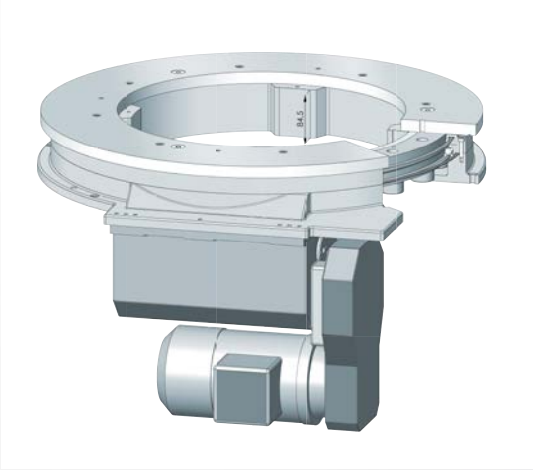
WEISS Application Software (WAS)



The TR with large through hole. Making sure everything that needs to fit does fit.

TR rotary indexing ring: New application possibilities

Rotary indexing ring with very large central opening, extremely flat design and high parts accuracy. The ring-shaped design allows extra free design space. The rotating aluminium ring can be adjusted to your specifications in terms of diameter and thickness.



Custom dimensions available: The diameter and thickness of the rotating aluminium ring can be adjusted to your own specifications.

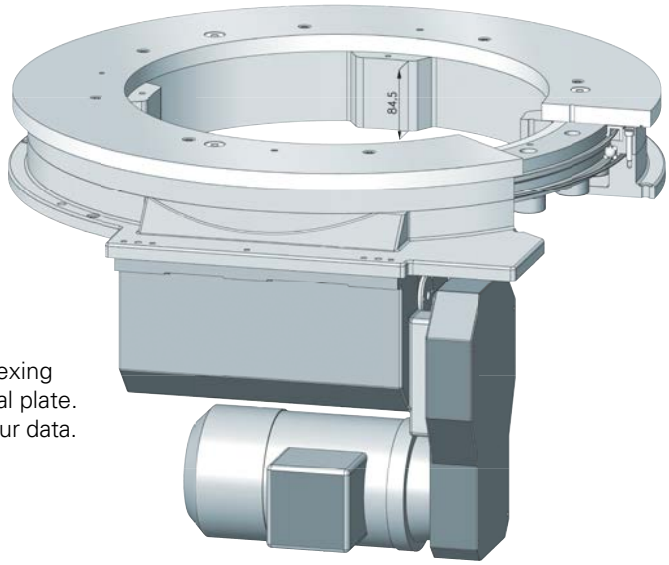
The TR full solution: Tailor-made electrical accessories. Control card, electronic protection or frequency converter.

Our CR heavy duty ring range is available for heavy loads.

Advantages at a glance

- Ring-shaped rotary indexing table with very large central opening
- High level of parts accuracy through locking on the outer edges
- Highly dynamic with smooth acceleration
- Flat, compact design – compatible with our tried and tested machines
- Four sizes
- The diameter and thickness of the rotating aluminium ring can be adjusted to your own specifications
- Available as a user-programmable NR-version (please also see the „User-programmable rotary indexing tables“ section)
- NR version with absolute measuring system
- Simplest control system, identical to our rotary indexing tables
- Excellent price-performance
- Appealing design

TR 750



The scope of delivery of the rotary indexing table does not include the additional dial plate. It will be calculated in accordance to your data.

Inertia Loading

Step		s	a	b	c	d	e	f	g	h
Indexing										
4	J_{max}	-	**3.4**	**9.9**	**15.2**	**32.2**	**58.9**	**86.9**	**218.5**	**327**
	t_s	-	0.42	0.53	0.66	0.81	1.01	1.26	1.94	**2.48**
6	J_{max}	-	**12**	**22**	**36**	**57**	**90**	**144**	**345**	**560**
	t_s	-	0.42	0.53	0.66	0.81	1.01	1.26	1.94	2.48
8	J_{max}	-	**19**	**31**	**49**	**78**	**120**	**195**	**460**	**750**
	t_s	-	0.42	0.53	0.66	0.81	1.01	1.26	1.94	2.48
10	J_{max}	-	**31**	**50**	**79**	**125**	**190**	**305**	**720**	**1170**
	t_s	-	0.40	0.50	0.62	0.77	0.96	1.20	1.85	2.35
12	J_{max}	**18**	**45**	**72**	**112**	**175**	**270**	**425**	**1015**	**1650**
	t_s	0.27	0.40	0.50	0.62	0.77	0.96	1.20	1.85	2.35
16	J_{max}	**20**	**57**	**90**	**140**	**190**	**335**	**530**	**1260**	**2045**
	t_s	0.26	0.39	0.48	0.60	0.74	0.92	1.16	1.78	2.27
20	J_{max}	**29**	**72**	**115**	**175**	**275**	**420**	**665**	**1575**	**2560**
	t_s	0.26	0.39	0.48	0.60	0.74	0.92	1.16	1.78	2.27
24	J_v	**35**	**85**	**135**	**210**	**330**	**505**	**800**	**1890**	**3070**
	t_s	0.26	0.39	0.48	0.60	0.74	0.92	1.16	1.78	2.27
30	J_{max}	**35**	**110**	**170**	**265**	**410**	**635**	**1000**	**2365**	**3840**
	t_s	0.26	0.39	0.48	0.60	0.74	0.92	1.16	1.78	2.27

J = max. admissible mass inertia loading (kgm²) t_s = cycle time (seconds). The time from signal "start" to message "indexer locked" is approx. 80 – 130 ms longer than the above cycle time, the exact time will depend on the motor, the speed of PLC and the optimization settings. **EF2** - control system for brake wear reduction recommended (see page 58).

Load data **(for indexing ring)**

F_N: *vertical force on the locked ring* **3500 N**	M_K: *permanent tilting moment acting on the locked ring* **750 Nm**
T_R : *permanent tangential moment acting on the locked ring* **2500 Nm**	F_R: *permanent radial force acting on the locked ring* **7000 N**

max. centrical load on the indexer at M_K = 0 Nm and F_R = 0 N on demand. Combined loads only after inspection by WEISS.

TR 750

Technical data

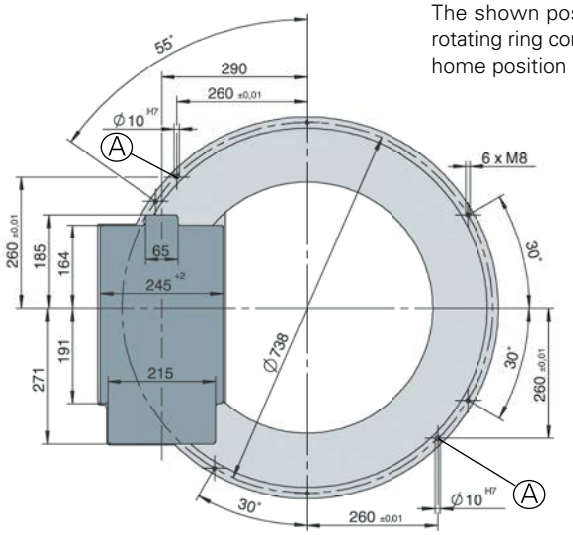
Dial ring inside diameter:	Max. 490 mm
Dial ringt outside diameter:	Min. 750 mm
Surface of the dial ring:	Anodized
Direction:	Clockwise - counter clockwise or reciprocating
Cycle rate:	Up to approx. 120 cycles/min, depending on inertia loading and number of stops
Voltage:	230 / 400 V 50 Hz special voltages upon request
Weight:	Approx. 230 kg
Mounting position:	Dial ring horizontal

Indexing precision (degree seconds):	± 18" (Higher indexing precision upon request)
Indexing precision in radian measurement:	± 0.033 mm (at Ø 750 mm)
Max. flatness of ring:	* 0.05 mm (at Ø 750 mm)
Max. run out:	* 0.03 mm
Max. parallelism of rotating plate surface to bottom housing surface:	* 0.05 mm (at Ø 750 mm)
Max. outer diameter:	1500 mm (or following consultation)

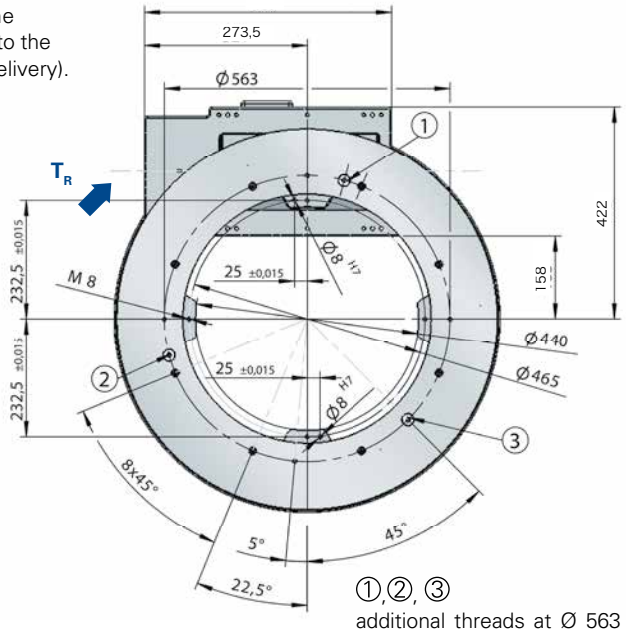
*Attention! In order to reach the above tolerances, please ensure that the flatness of the mounting plate is accurate.

Assembly hole and bore pattern

The shown position of the rotating ring corresponds to the home position (state of delivery).

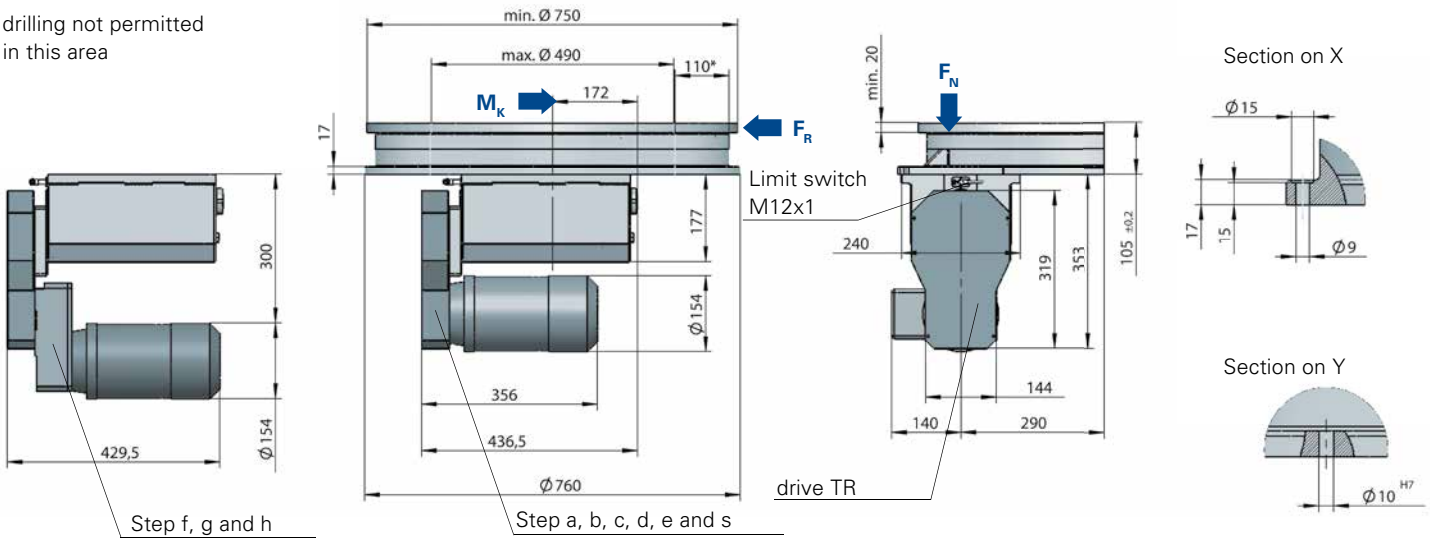


Ⓐ Two fit bores for pinning the cast iron ring onto the base plate.

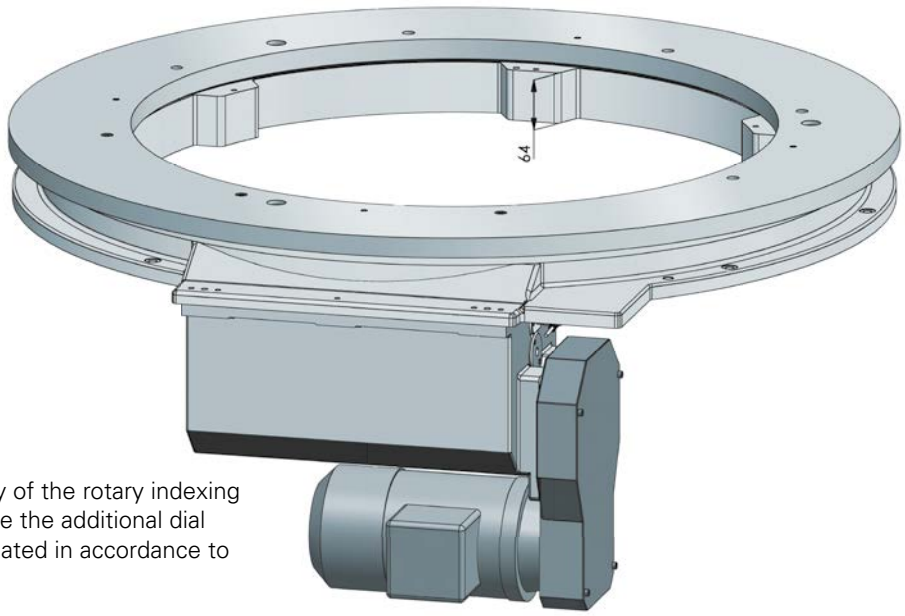


①,②, ③ additional threads at Ø 563 mm for the production of the dial plate, depending of outer diameter Ø 750 mm.

* drilling not permitted in this area



TR 1100



The scope of delivery of the rotary indexing table does not include the additional dial plate. It will be calculated in accordance to your data.

Step		s	a	b	c	d	e	f	g	h	i
Indexing											
4	J_{max}	-	-	11.3	18.8	41.4	57.5	92.5	177.6	295.6	443.3
	t_s	-	-	0.53	0.59	0.82	0.90	1.15	1.41	2.16	2.75
6	J_{max}	-	13	34	43	92	114	190	290	675	1010
	t_s	-	0.42	0.53	0.59	0.82	0.90	1.15	1.41	2.16	2.75
8	J_{max}	-	26	48	61	126	155	255	385	925	1510
	t_s	-	0.42	0.53	0.59	0.82	0.90	1.15	1.41	2.16	2.75
10	J_{max}	-	42	80	100	185	245	405	610	1455	2365
	t_s	-	0.39	0.51	0.56	0.78	0.86	1.09	1.33	2.05	2.61
12	J_{max}	21	62	116	143	260	350	495	860	2045	3325
	t_s	0.29	0.39	0.51	0.56	0.78	0.86	1.09	1.33	2.05	2.61
16	J_{max}	38	86	146	180	355	435	715	1070	2540	4125
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
20	J_{max}	57	109	185	225	450	550	895	1340	3175	5160
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
24	J_v	65	135	225	275	540	660	1075	1605	3810	6190
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
30	J_{max}	90	170	280	345	675	825	1345	2010	4765	7740
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
36	J_{max}	110	205	340	415	815	995	1620	2415	5720	9290
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52

J = max. admissible mass inertia loading (kgm²) t_s = cycle time (seconds). The time from signal "start" to message "indexer locked" is approx. 80 – 130 ms longer than the above cycle time, the exact time will depend on the motor, the speed of PLC and the optimization settings. **EF2** - control system for brake wear reduction recommended (see page 58).#

Load data (for indexing ring)

F_N: *vertical force on the locked ring*

6000 N

M_K: *permanent tilting moment acting on the locked ring*

2500 Nm

T_R : *permanent tangential moment acting on the locked ring*

3500 Nm

F_R: *permanent radial force acting on the locked ring*

12000 N

max. centrical load on the indexer at M_K = 0 Nm and F_R = 0 N on demand. Combined loads only after inspection by WEISS.

TR 1100

Technical data

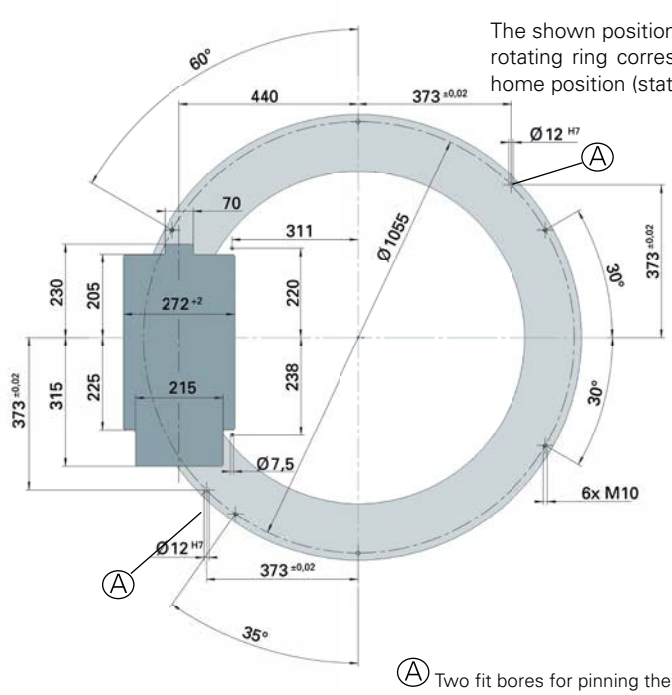
Dial ring inside diameter:	Max. 800 mm
Dial ringt outside diameter:	Min. 1100 mm
Surface of the dial ring:	Anodized
Direction:	Clockwise - counter clockwise or reciprocating
Cycle rate:	Up to approx. 120 cycles/min, depending on inertia loading and number of stops
Voltage:	230 / 400 V 50 Hz special voltages upon request
Weight:	Approx. 310 kg
Mounting position:	Dial ring horizontal

Indexing precision (degree seconds):	± 18" (Higher indexing precision upon request)
Indexing precision in radian measurement:	± 0.048 mm (at Ø 1100 mm)
Max. flatness of ring:	* 0.06 mm (at Ø 1100 mm)
Max. run out:	* 0.04 mm
Max. parallelism of rotating plate surface to bottom housing surface:	* 0.06 mm (at Ø 1100 mm)
Max. outer diameter:	2200 mm (or following consultation)

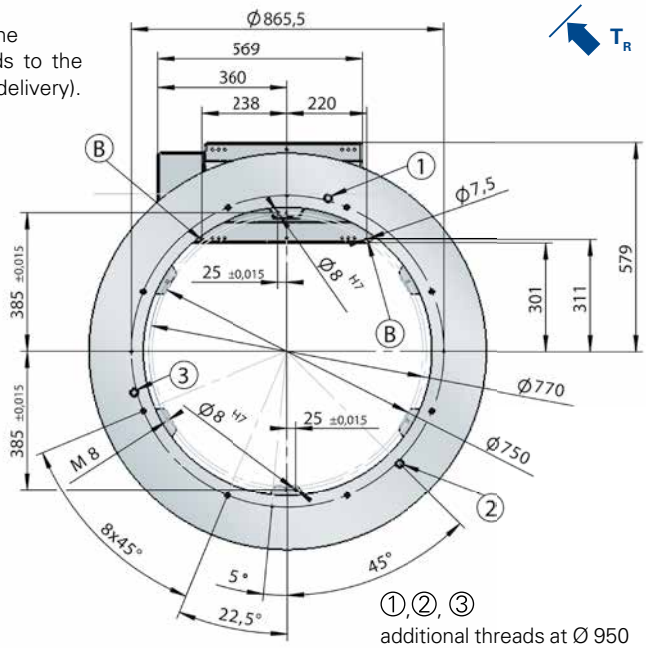
*Attention! In order to reach the above tolerances, please ensure that the flatness of the mounting plate is accurate.

Assembly hole and bore pattern

The shown position of the rotating ring corresponds to the home position (state of delivery).

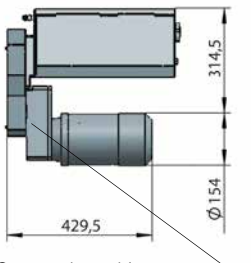


Ⓐ Two fit bores for pinning the cast iron ring onto the base plate.

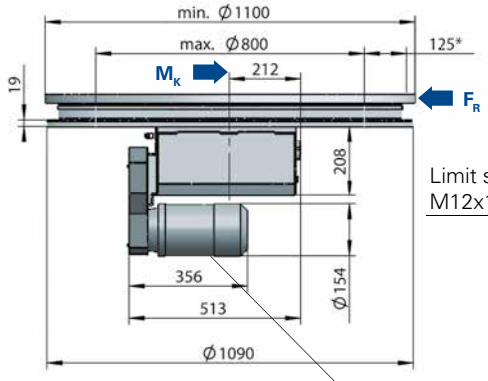


①,②, ③ additional threads at Ø 950 mm for the production of the dial plate, depending of outer diameter Ø 1100 mm.

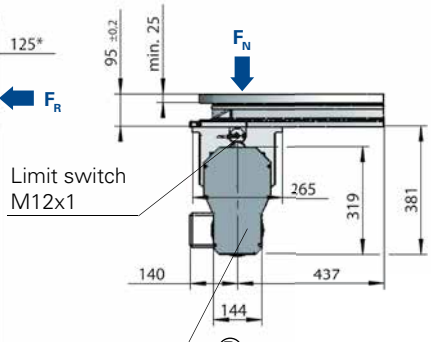
* drilling not permitted in this area



Step g, h and i



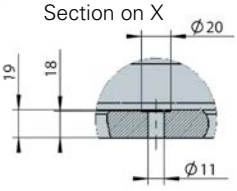
Step a, b, c, d, e, f and s



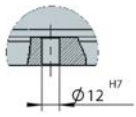
Limit switch M12x1

drive TR

Section on X

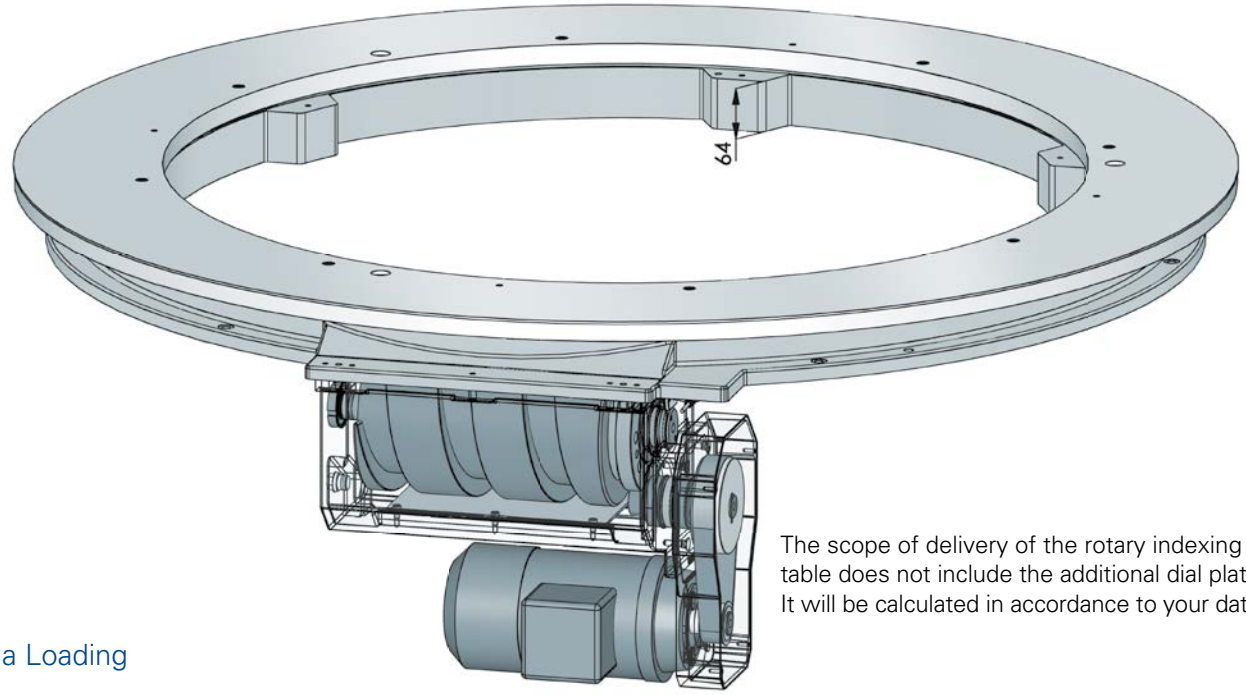


Section on Y



Ⓑ In case that the fittings Ⓐ cannot be used for construction reasons, so please use the bores Ⓑ as alignment. Then, go ahead with boring the casting together with the base plate and open the pin holes by rubbing.

TR 1500



The scope of delivery of the rotary indexing table does not include the additional dial plate. It will be calculated in accordance to your data.

Inertia Loading

Step		s	a	b	c	d	e	f	g	h	i
Indexing											
8	J_{max}	-	-	57	74	163	203	342	520	1258	1792
	t_s	-	-	0.53	0.59	0.82	0.90	1.15	1.41	2.16	2.75
10	J_{max}	-	48	100	127	265	330	545	825	1975	2395
	t_s	-	0.39	0.51	0.56	0.78	0.86	1.09	1.33	2.05	2.61
12	J_{max}	-	75	149	185	380	470	775	1165	2785	3330
	t_s	-	0.39	0.51	0.56	0.78	0.86	1.09	1.33	2.05	2.61
16	J_{max}	43	108	190	235	480	590	965	1440	3460	5325
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
20	J_{max}	69	140	243	301	605	740	1215	1820	4330	7040
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
24	J_{max}	87	172	295	365	730	890	1460	2185	5200	8455
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
30	J_{max}	114	221	375	460	915	1120	1830	2740	6505	10570
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
36	J_v	141	270	455	560	1105	1350	2200	3290	7810	12690
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52
48	J_{max}	324	600	995	1215	2375	2900	4720	7045	16685	27095
	t_s	0.28	0.38	0.49	0.54	0.75	0.83	1.05	1.29	1.98	2.52

J = max. admissible mass inertia loading (kgm²) t_s = cycle time (seconds). The time from signal "start" to message "indexer locked" is approx. 80 – 130 ms longer than the above cycle time, the exact time will depend on the motor, the speed of PLC and the optimization settings. **EF2** - control system for brake wear reduction recommended (see page 58).

Load data

F_N: *vertical force on the locked ring*

8000 N

M_K: *permanent tilting moment acting on the locked ring*

3200 Nm

T_R: *permanent tangential moment acting on the locked ring*

5000 Nm

F_R: *permanent radial force acting on the locked ring*

16000 N

max. centrical load on the indexer at M_K = 0 Nm and F_R = 0 N on demand. Combined loads only after inspection by WEISS.

TR 1500

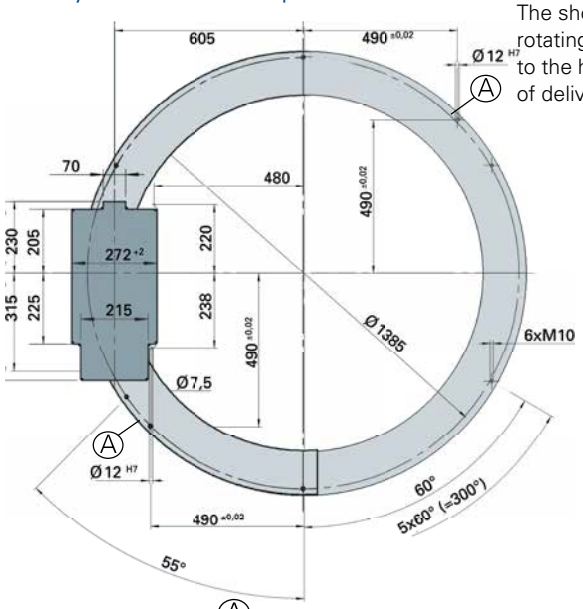
Technical data

Dial ring inside diameter:	Max. 1135 mm
Dial ringt outside diameter:	Min. 1500 mm
Surface of the dial ring:	Anodized
Direction:	Clockwise - counter clockwise or reciprocating
Cycle rate:	Up to approx. 120 cycles/min, depending on inertia loading and number of stops
Voltage:	230 / 400 V 50 Hz special voltages upon request
Weight:	Approx. 400 kg
Mounting position:	Dial ring horizontal

Indexing precision (degree seconds):	± 15" (Higher indexing precision upon request)
Indexing precision in radian measurement:	± 0.055 mm (at Ø 1500 mm)
Max. flatness of ring:	* 0.08 mm (at Ø 1500 mm)
Max. run out:	* 0.04 mm
Max. parallelism of rotating plate surface to bottom housing surface:	* 0.08 mm (at Ø 1500 mm)
Max. outer diameter:	3000 mm (or following consultation)

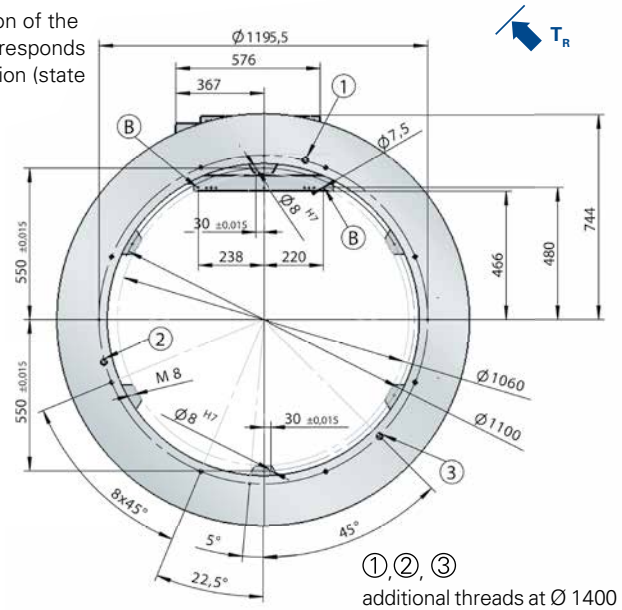
*Attention! In order to reach the above tolerances, please ensure that the flatness of the mounting plate is accurate.

Assembly hole and bore pattern



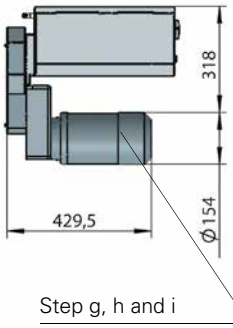
The shown position of the rotating ring corresponds to the home position (state of delivery).

Ⓐ Two fit bores for pinning the cast iron ring onto the base plate.

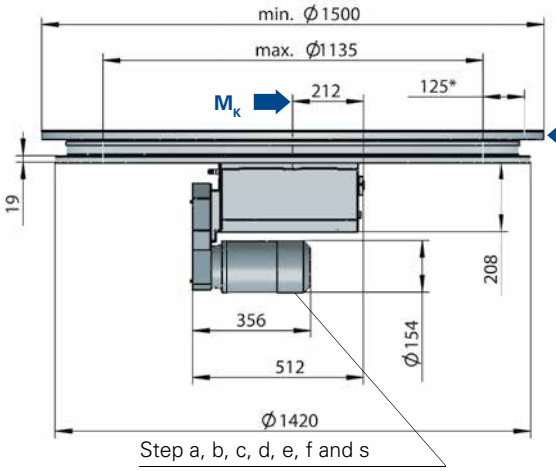


①, ②, ③ additional threads at Ø 1400 mm for the production of the dial plate, depending of outer diameter Ø 1500 mm.

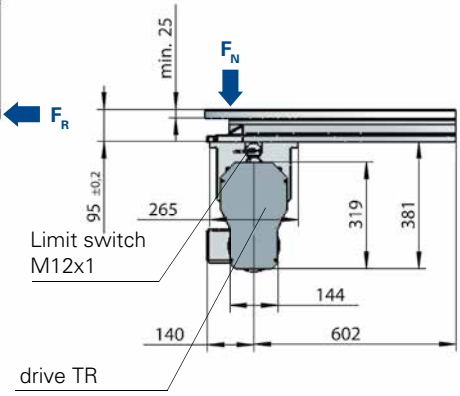
* drilling not permitted in this area



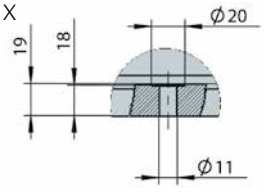
Step g, h and i



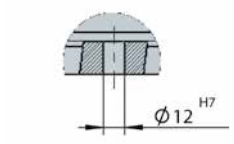
Step a, b, c, d, e, f and s



Section on X

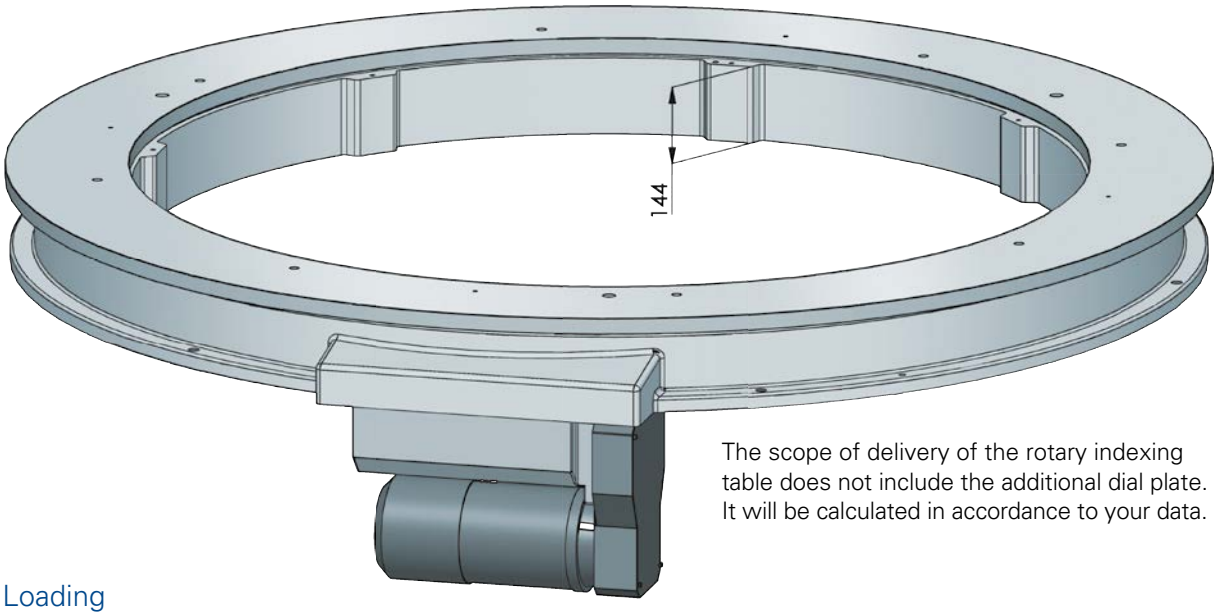


Section on Y



Ⓑ In case that the fittings Ⓐ cannot be used for construction reasons, so please use the bores Ⓑ as alignment. Then, go ahead with boring the casting together with the base plate and open the pin holes by rubbing.

TR 2200



The scope of delivery of the rotary indexing table does not include the additional dial plate. It will be calculated in accordance to your data.

Inertia Loading

Step		a	b	c	d	e	f	g
Indexing								
14	J_{max}	–	–	–	**525**	**720**	**1010**	**2400**
	t_s	–	–	–	0.77	0.86	0.97	1.48
16	J_{max}	–	–	**420**	**995**	**1030**	**1640**	**3075**
	t_s	–	–	0.62	0.77	0.86	0.97	1.48
18	J_{max}	–	–	**600**	**1325**	**1370**	**2140**	**3955**
	t_s	–	–	0.62	0.77	0.86	0.97	1.48
20	J_{max}	–	**511**	**797**	**1550**	**1750**	**2670**	**4945**
	t_s	–	0.50	0.62	0.77	0.86	0.97	1.48
24	J_{max}	–	**665**	**1180**	**1805**	**2455**	**3255**	**7230**
	t_s	–	0.50	0.62	0.77	0.86	0.97	1.48
30	J_{max}	–	**707**	**1245**	**2010**	**2580**	**3420**	**8240**
	t_s	–	0.46	0.57	0.70	0.78	0.89	1.36
36	J_{max}	**465**	**900**	**1545**	**2465**	**3135**	**4155**	**9940**
	t_s	0.37	0.46	0.57	0.70	0.78	0.89	1.36
48	J_{max}	**762**	**1281**	**2140**	**3370**	**4165**	**5625**	**13335**
	t_s	0.37	0.46	0.57	0.70	0.78	0.89	1.36

J = max. admissible mass inertia loading (kgm²) t_s = cycle time (seconds). The time from signal "start" to message "indexer locked" is approx. 80 – 130 ms longer than the above cycle time, the exact time will depend on the motor, the speed of PLC and the optimization settings.
EF2 - control system for brake wear reduction recommended (see page 58).

Load data **(for indexing ring)**

F_N: *vertical force on the locked ring* **15000 N**	M_K: *permanent tilting moment acting on the locked ring* **4500 Nm**
T_R: *permanent tangential moment acting on the locked ring* **15000 Nm**	F_R: *permanent radial force acting on the locked ring* **30000 N**

max. centrical load on the indexer at M_K = 0 Nm and F_R = 0 N on demand. Combined loads only after inspection by WEISS.

TR 2200

Technical data

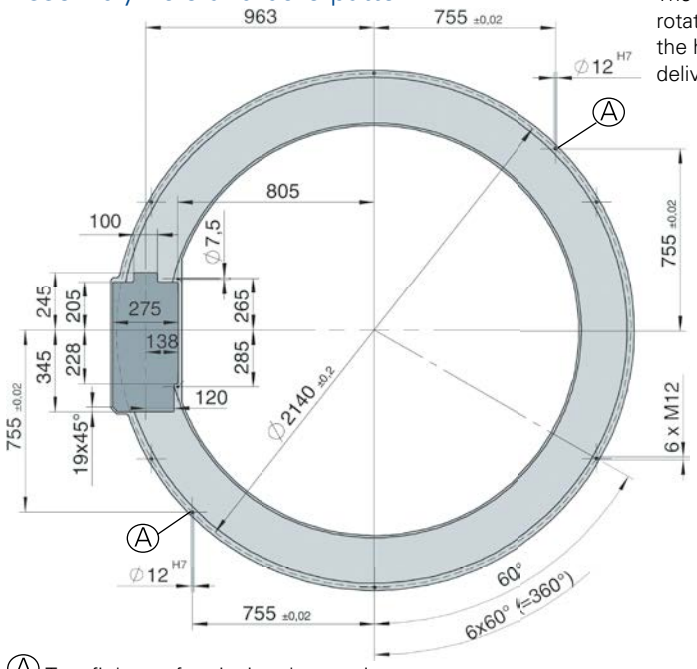
Dial ring inside diameter:	Max. 1750 mm
Dial ringt outside diameter:	Min. 2200 mm
Surface of the dial ring:	Anodized
Direction:	Clockwise - counter clockwise or reciprocating
Cycle rate:	Up to approx. 120 cycles/min, depending on inertia loading and number of stops
Voltage:	230 / 400 V 50 Hz special voltages upon request
Weight:	Approx. 950 kg
Mounting position:	Dial ring horizontal

Indexing precision (degree seconds):	± 12" (Higher indexing precision upon request)
Indexing precision in radian measurement:	± 0.064 mm (at Ø 2200 mm)
Max. flatness of ring:	* 0.08 mm (at Ø 2200 mm)
Max. run out:	* 0.05 mm
Max. parallelism of rotating plate surface to bottom housing surface:	* 0.08 mm (at Ø 2200 mm)
Max. outer diameter:	4400 mm (or following consultation)

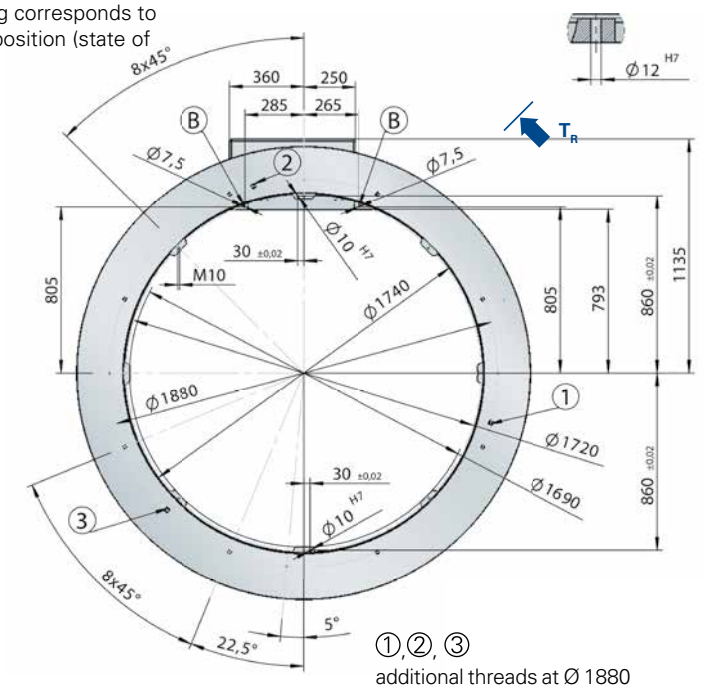
*Attention! In order to reach the above tolerances, please ensure that the flatness of the mounting plate is accurate.

Assembly hole and bore pattern

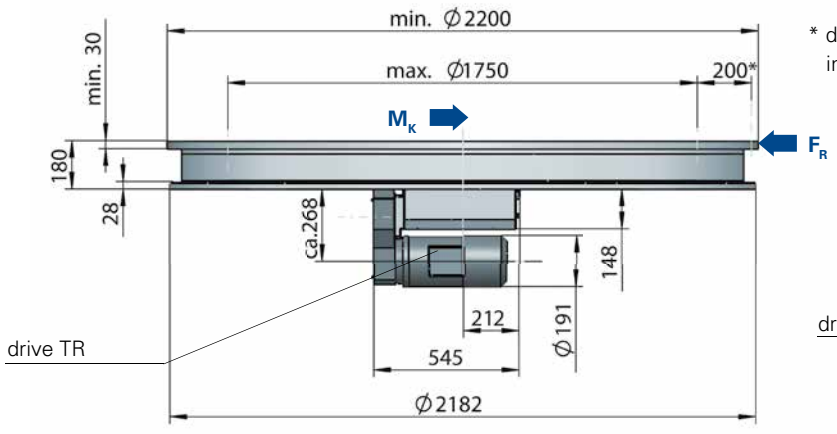
The shown position of the rotating ring corresponds to the home position (state of delivery).



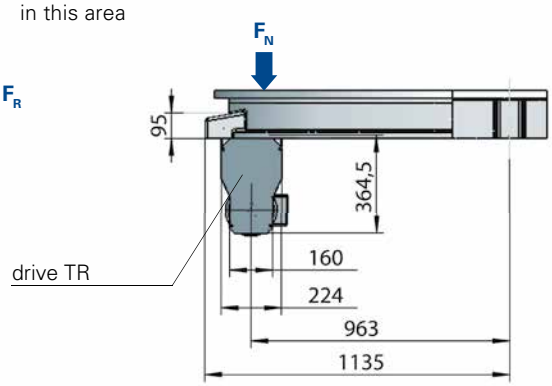
Ⓐ Two fit bores for pinning the cast iron ring onto the base plate.



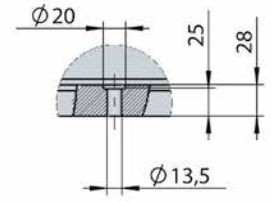
①,②, ③ additional threads at Ø 1880 mm for the production of the dial plate, depending of outer diameter Ø 2200 mm.



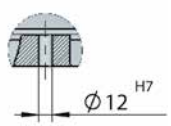
* drilling not permitted in this area



Section on X



Section on Y



Ⓑ In case that the fittings Ⓐ cannot be used for construction reasons, so please use the bores Ⓑ as alignment. Then, go ahead with boring the casting together with the base plate and open the pin holes by rubbing.

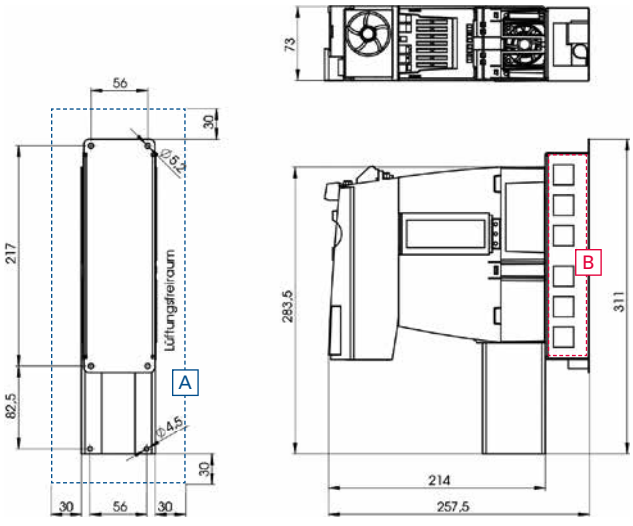
EF2 rotary table control system

Advantages

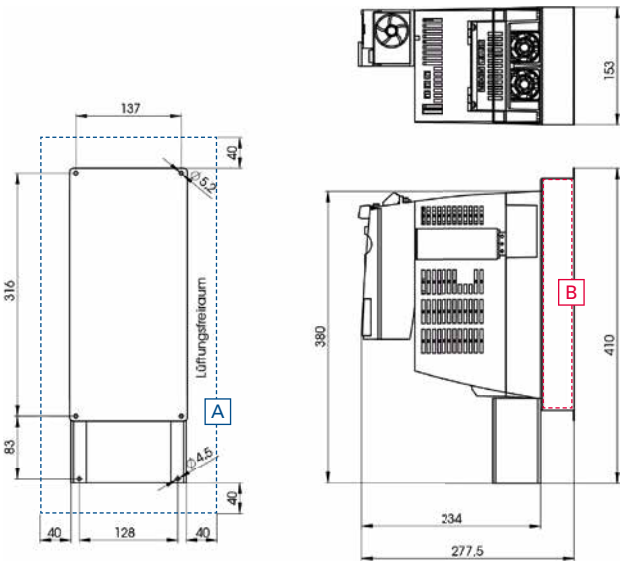
The EF2 rotary table control system enables fast and convenient control of rotary indexing tables of all sizes belonging to the TC and TR series. The control system is designed for operation of the TC and TR rotary indexing tables and offers the following advantages:

- Frequency converter control system designed specifically for WEISS electromechanical rotary indexing tables
- Intuitive, web-based user interface for faster commissioning
- No brake wear, soft start-up from intermediate positions is gentle on gearing
- Increased performance through fully automatic optimisation cycle
- Remote support and remote diagnostics options
- Worldwide use thanks to various mains standards
- Compact hardware (all-in-one)
- Fieldbus connection: Profibus and Profinet
- Interface: Digital I/O
- Integrated SIL2 safety function
- Additional SIL3 measures possible

Fitting dimensions



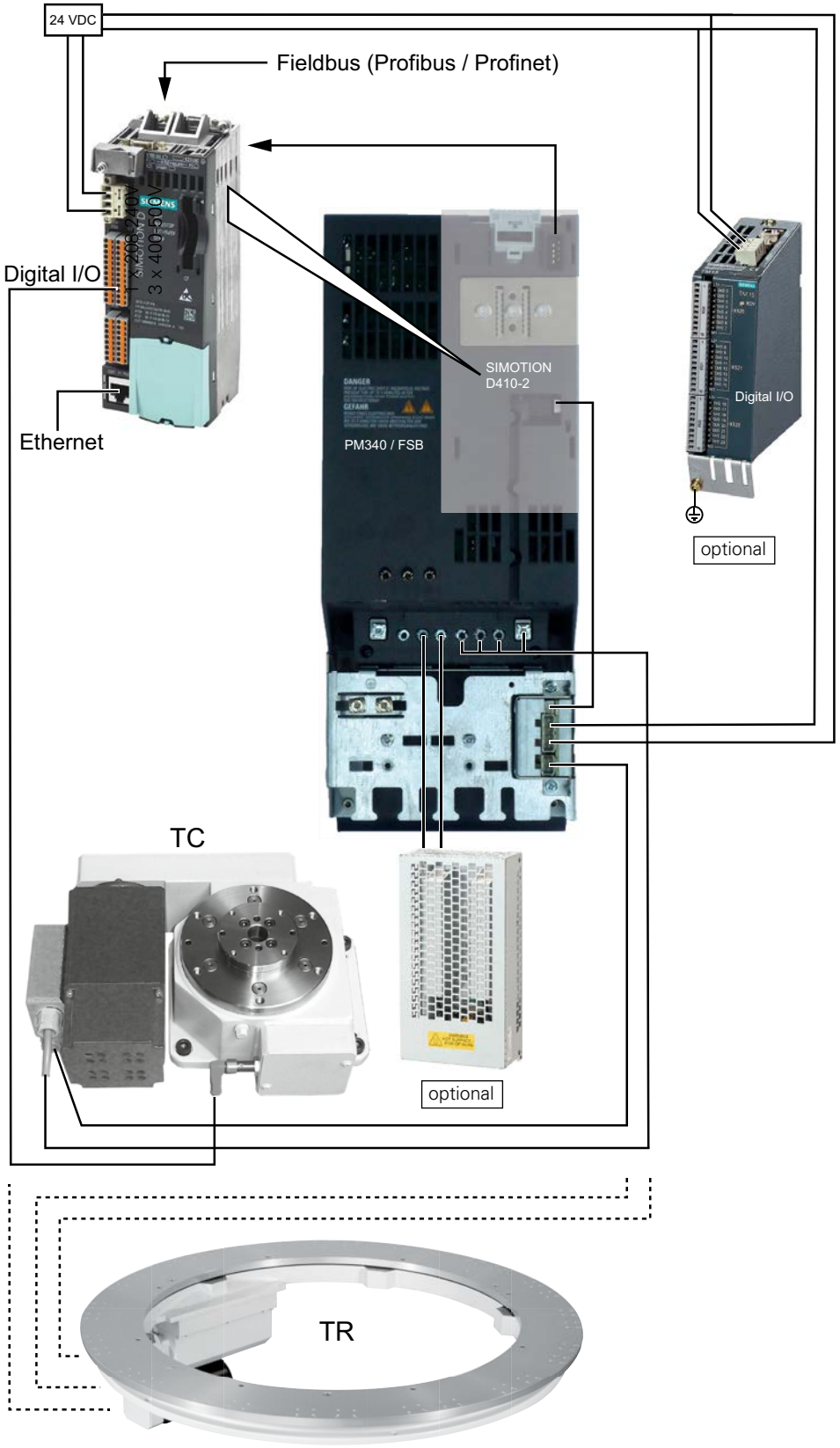
FSA size (EF2037, EF2150)



FSB size (EF2220, EF2300)

[A] Ventilation clearance
[B] Brake resistance

Block diagram EF2



Control card TS 004E

Advantages

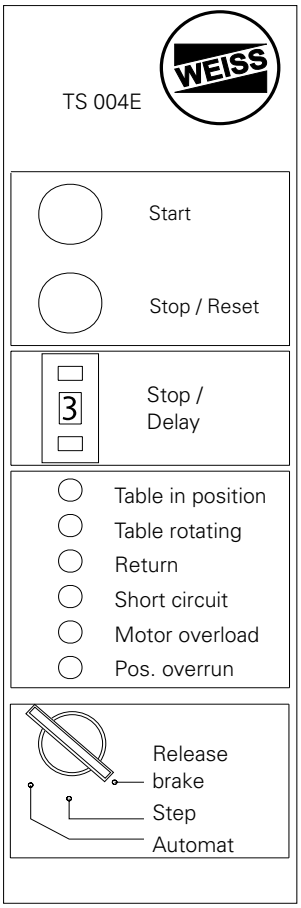
- User friendly push buttons on front panel.
- Easy to optimize the cycle time of the indexer.
- Motor protection through cycle time monitoring.
- Allows failure analysis by telephone.
- EWR: Considerable extension of the service life of the brake by reduction of the motor speed before braking

Dimensions (L x W x H)

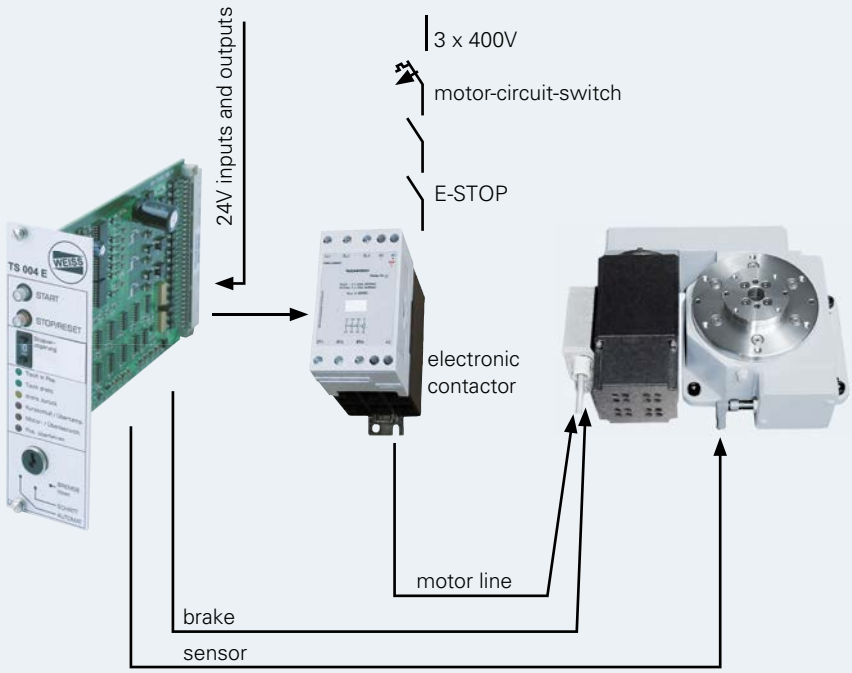
- Control card:
  Eurocard 100 x 160 mm
  Front plate 3HE/8TE
  Multipoint plug, 64-pin in
  accordance with DIN 41612 Type B
- PCB holder: 220 x 130 x 50 mm
- Housing for rear wall mounting: 235 x 135 x 67 mm
- Housing for rail mounting: 245 x 135 x 67 mm
- Housing for front panel installation: 235 x 135 x 67 mm
- Installation opening: 136 x 68 mm

Installation options

- In a 19“ rack (in conjunction with terminal PCB TS 004 K1)
- In the PCB holder
- In the protective housing



Block diagram TS 004E



Fax to: +49(0)6281 5208-99
or just fill in the form online:
www.weiss-international.com

Machine Dimensioning TR

☐ **Enquiry** ☐ **Enclosure with order**

Dear customer,

Thank you for your interest in our Indexing Rings. To enable us to supply you with the correct unit for your application, we kindly ask you to answer the following questions:

Model

☐ TR 750A ☐ TR 1100A ☐ TR 1500A ☐ TR 2200A

Indexing _____ ☐ Drive on the bottom

Switching time

Based on the calculated mass inertia, do you require:

☐ The shortest switching time
☐ A longer switching time of approx. _____ sec
☐ Angle of rotation _____ °
☐ Standing time _____ sec

Additional Components (optional)

☐ Add. raised support for fixed stationary plate: H _____ mm
☐ Add raised support for indexing ring: H_____ mm
☐ Base frame model (according to chapter customer-specific solutions)

Colour

☐ RAL 7035 (light grey-standard)
☐ Special colour RAL _____ (extra charge)
☐ Lugs used: ☐ Yes ☐ No (Lugs painted)

Required to specify your TR table

The following specification regarding your configuration is fundamental for the calculation of the mass moment of inertia.

Indexing ring

Outer Diameter: _____ mm
Inner Diameter: _____ mm
Thickness: _____ mm
Material: ☐ AlMg4.5Mn ☐ other_____
Please draw a sketch of how your load is build on the table.
Total mass inertia: _____ kg m² (additional indexing plate and add-ons)

Fixtures and parts

Number: _____
Weight per station: _____ kg
Diameter of the center of gravity: _____ mm

Additional indexing plate

☐ Included in the scope of offer and delivery
Processing according to drawing No. _____

Electrical data

Drive

☐ Three-phase braking motor (standard)

Motor

☐ Voltage 3 x 400 V / 50 Hz (standard)
☐ Other: _____ V / _____ Hz

Brake

☐ Braking voltage 24 V = (recommended)
☐ Other: _____V

It is recommended to drive the motor with an electronic contactor!

☐ Electronic contactor*
☐ Electronic reversing contactor*

* not necessary with frequency converter control system EF1/EF2

Control EF1 / EF2 / TS 004 E

☐ **Frequency converter control system EF1 (Lenze)**
☐ **Frequency converter control system EF2 (Siemens)**
interface Profibus + ProfiNet onboard
☐ TM 15 Module for interface Digitale I/O
☐ SIL3 (STO) - motor contactor + safty relay

☐ **Use of the WEISS control card TS 004 E**
☐ terminal PCB for 19" rack
☐ PCB card holder
☐ Protective housing for:
☐ Rear wall mounting ☐ Front panel mounting
☐ Rail mounting ☐ Frontdoor, lockable and transparent

Front panel language for WEISS control card TS 004E
☐ German ☐ Italian ☐ English ☐ Dutch ☐ French

For technical enquiries

Company: _____
Name: _____
Country: _____

Desired delivery date: _____
Phone: _____ Fax: _____
eMail: _____

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