ROTATING

TÜNKERS®
Ingenuity in series.

Rotating

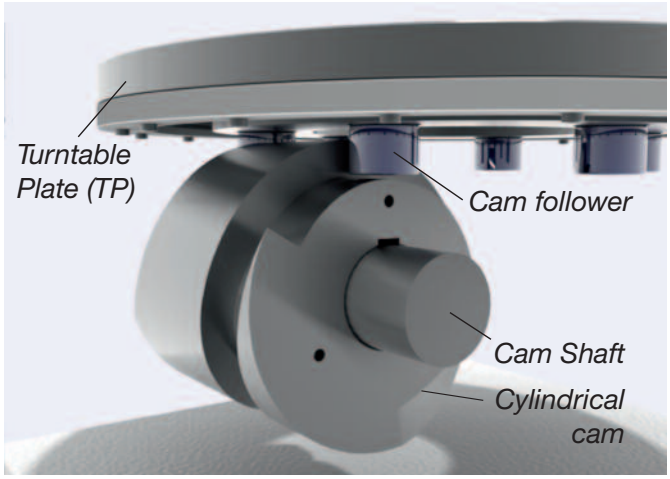
Rotating is an established process used in automated production lines. To be exact, it involves incremental rotating and positioning in manufacturing installations. Typical applications include feeding in workpieces by means of a 180° movement and circular indexing table, whereby work sequences are arranged in circular form. High acceleration and braking functions are also requirements of rotary tables, as the precise positioning for the operating positions and the dwell period. The product range offered by EXPERT-TÜNKERS and SOPAP includes standard rotary tables with performance figures up to 150,000 Nm at dimensions of up to 10 metres diameter. All the systems features maximum accuracy of processing and are therefore suitable for use in high volume series production plants.

ROTATING

Rotary Index Tables

TÜNKERS®
Ingenuity in series.

Rotary Index Tables



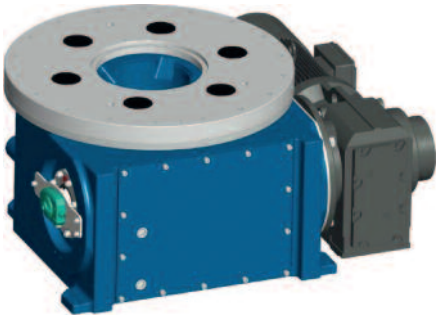
Rotary index tables are circular indexing drive mechanisms in which the torque generated by the geared motor is transferred to the turntable plate via an index cam, using cam follower.

Features of this type of construction include the transfer of extremely high power combined with compact dimensions.

The optimum meshing between the cam and cam follower ensures a nearly zero-backlash positioning of the rotary table.

The EDX Series of rotary tables incorporate indexing drive mechanisms for rotary movements with more stringent demands in terms of precision and repetitive accuracy. The complete motion profile, with acceleration, decleration and output angle, is achieved by means of an individually-manufactured index cam. For this reason, efficient conventional AC drive mechanisms with constant rotational speed can be used as the power source.

The EDX Series of rotary tables are not only suitable for conventional use as rotary tables but also as trunnion drive units with a horizontal axis of rotation.



Minimum free play in the operating position due to the cam drive principle

A characteristic of EDX Series rotary tables is the fact that the dial plate is continuously driven by two cam followers. In addition, this double meshing of the roller pins ensures virtually zero-backlash locking of the turntable plate in the operating position. Alternatively, this can be achieved by widening the zero position.

SMARTTURN: rotary position sensor instead of mechanical switchgear

As an option, the current generation of fixed-position rotary tables can be equipped with the specially-developed TÜNKERS ‘SmartTurn’ control unit. This compact control unit with suitable inductive rotary position sensor replaces the previous electromechanical switchgear.

This combination of modern control unit and the proven precision of the EDX Series results in a reliable and future-proof product for a wide range of applications:

– Self-learning system

– Commissioning via the first motion cycle

– No readjustment required

– Monitoring of the braking distance and wear

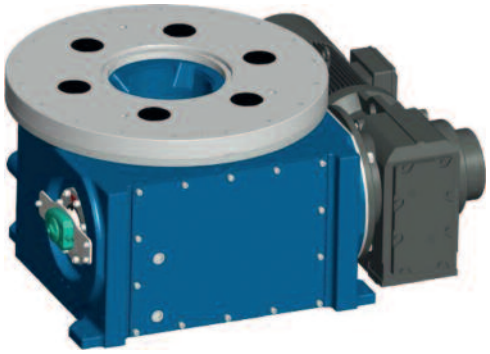
– Warning signal to replace brake discs and safety cut-off

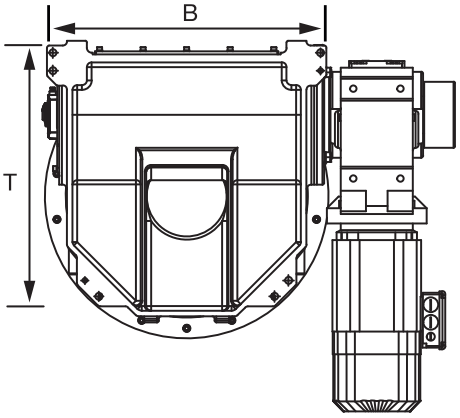
Standard stops

The indexing positions of the rotary table are defined in the motion profile specified in the indexing cam. Most common, partitions are 2-stop = 180°, 3-stop = 120° and 4-stop = 90°.

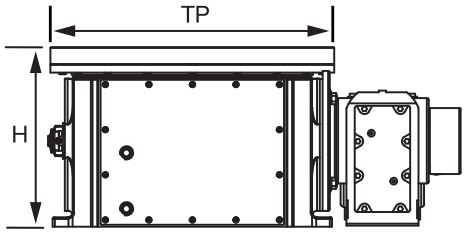
Individual solutions are available on request.

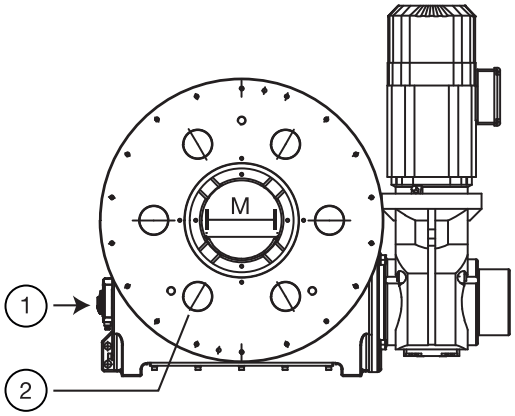
Fixed-position Rotary Tables – EDX Series

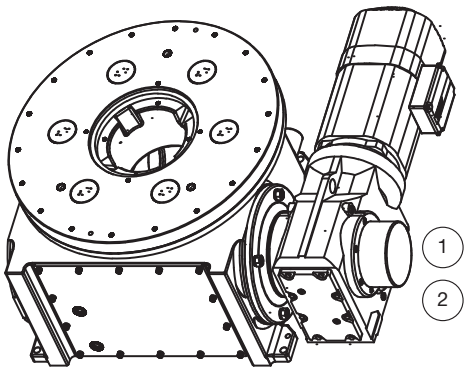




- Precision indexing drive with fixed position and energy-efficient 3-phase AC geared motor
- Smooth and impact-free motion sequence due to specific law of motion on the cylindrical index cam
- Low backlash, positive lock position without any additional locking devices in the operating position
- Optimised power transmission and emergency stop safety due to multiple cam follower principle
- Can be used as table and trunnion drive unit







1 Standard SMART-TURN control unit

2 Position of the cam follower in the basic setting

Type	TP Turntable plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
EDX 610	360	80	250	378	416	180
EDX 700	450	100	310	508	466	230
EDX 810	560	150	360	620	564	380
EDX 960	710	200	450	700	650	720
EDX 1170	920	280	550	890	895	1375
EDX 1370	1120	380	620	1090	1085	2150
EDX 1600	1350	464	720	1300	1315	3750

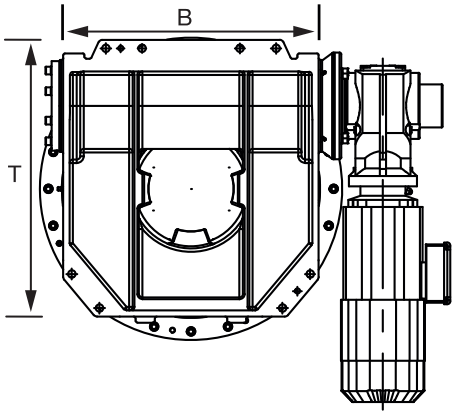
Subject to technical modifications.

In addition to fixed-position rotary table, flexible rotary tables are equipped with an index cam with a constant pitch: resulting in an unchanged reduction ratio between the motor and the turntable plate. The partition is exclusively determined by the correspondence control unit of the servomotor.

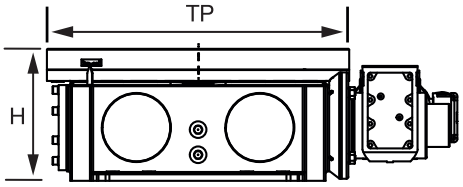
The flexible rotary tables can be adapted to almost any load by individual programming. In this case, the flexible servo geared motor not only enables the free setting of the output angle, but also an optimized acceleration response for the particular load.

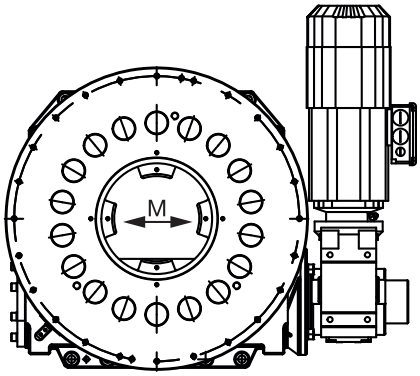
Being flexible in use, the rotary tables of this type are particularly suitable for drive tasks in which the movement sequence has to be adpated in production process, for example by new loads, new positions/end positions or travel directions. A typical example is the production of different vehicles on a production line, which makes flexible modification necessary in the prodction cycle.

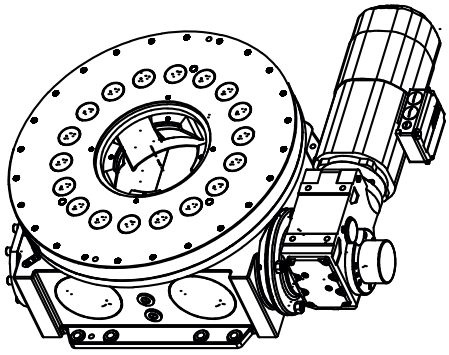
Flexible Rotary Tables – EDH Series



- High performance indexing power unit with flexible positioning and individually programmable servo-motor
- Smooth and impact-free motion sequence due to the special motion profile of the servo-motor
- Optimised power transmission and emergency safety stop due to multiple cam follower principle
- Compact design with high performance
- Can be used as table and trunnion drive unit

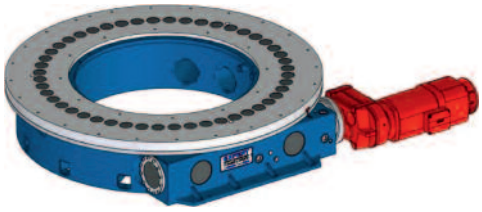


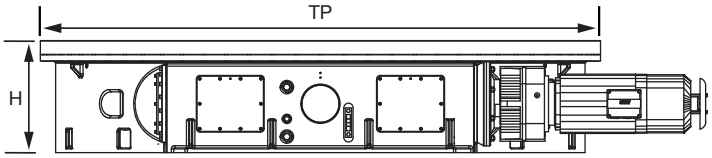




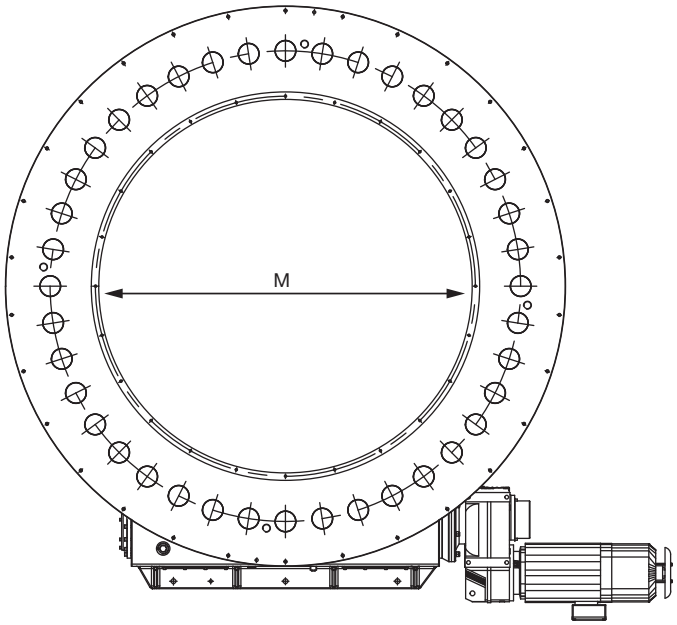
Type	TP Turntable plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Number of cam followers	Weight without motor (kg)
EDH 610	360	80	190	300	347	12	110
EDH 700	450	90	240	380	435	16	200
EDH 810	560	140	280	480	535	16	320
EDH 960	710	200	310	600	650	18	500
EDH 1170	920	300	360	800	870	20	700
EDH 1370	1120	380	420	1000	1065	20	1550
EDH 1600	1350	500	480	1220	1320	20	2350

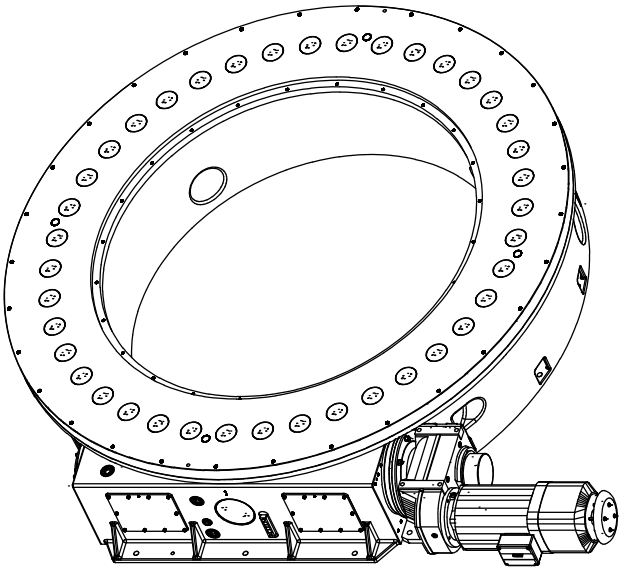
Subject to technical modifications.





- Heavy-duty rotary table with flexible positioning and individually programmable servo-motor
- Smooth and impact-free motion sequence due to the special motion profile of the servo-motor
- Optimised power transmission and emergency safety stop due to multiple cam follower principle
- Flat ring construction with large center passage

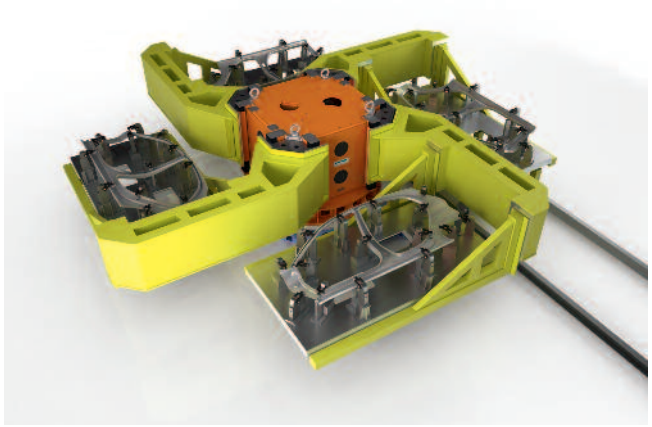




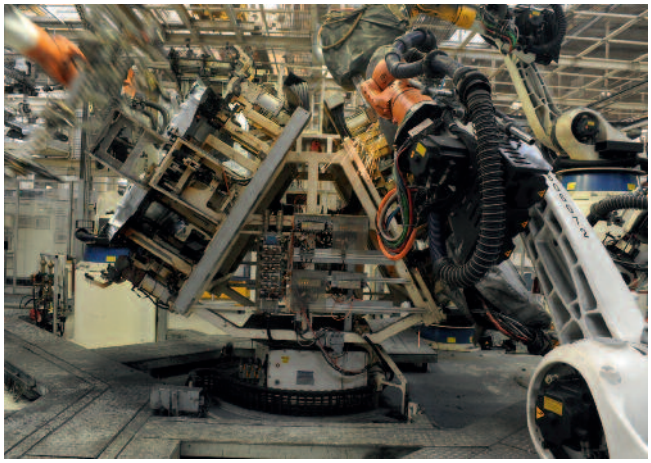
Type	Turntable plate outside dia. (mm)	Turntable plate inside dia. (mm)	H Overall height (mm)	Number of cam followers	Weight (kg)
EDH 2050	1800	900	480	30	3100
EDH 2550	2300	1300	450	48	4000
EDH 3250	3000	1700	600	40	6800

Subject to technical modifications.

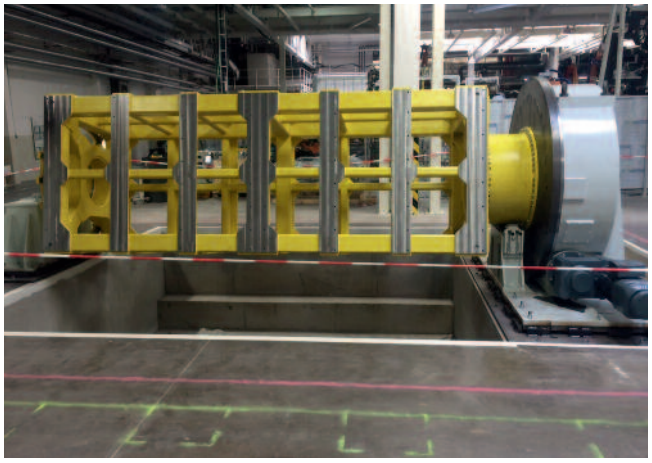
Typical applications



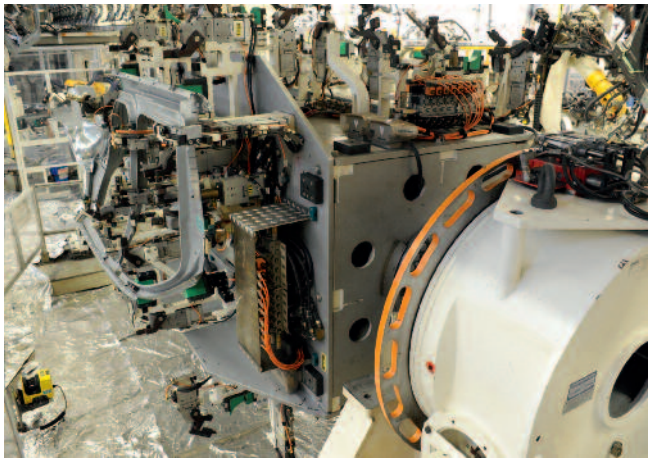
EXPERT Heavy-duty Rotary Lifting Unit, 4-stop positioning



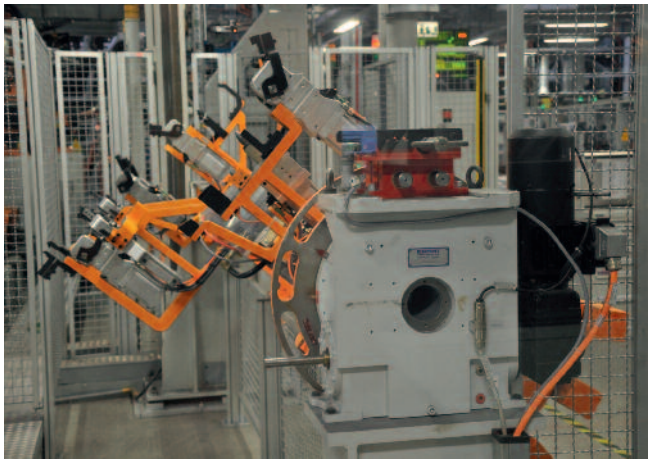
EXPERT Rotary Table, 2-stop positioning



EXPERT Heavy-duty Trunnion, during installation (for 4 tools)



EXPERT Trunnion Drive Unit, 4-stop positioning



EXPERT Trunnion Drive Unit with maintenance looking divice

EXPERT Giant Trunnion with EDH 2550, 6-stop positioning

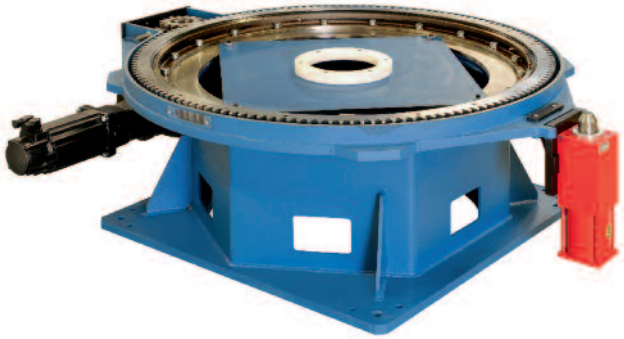
ROTATING

Simplex Rotary Tables

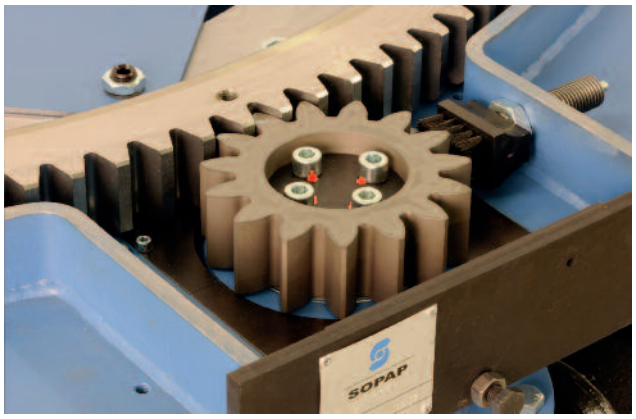
TÜNKERS®
Ingenuity in series.

Simplex Rotary Tables

Simplex means ‘simple’ and that term accurately describes this series of rotary tables, constructed using a smaller number of basic components. The rotary motion from the geared motor is transmitted to the dial plate by means of a sprocket wheel or a toothed belt. This configuration is a simplified form of precision power unit and, in turn, an inexpensive system, also equipped with a position release unit.



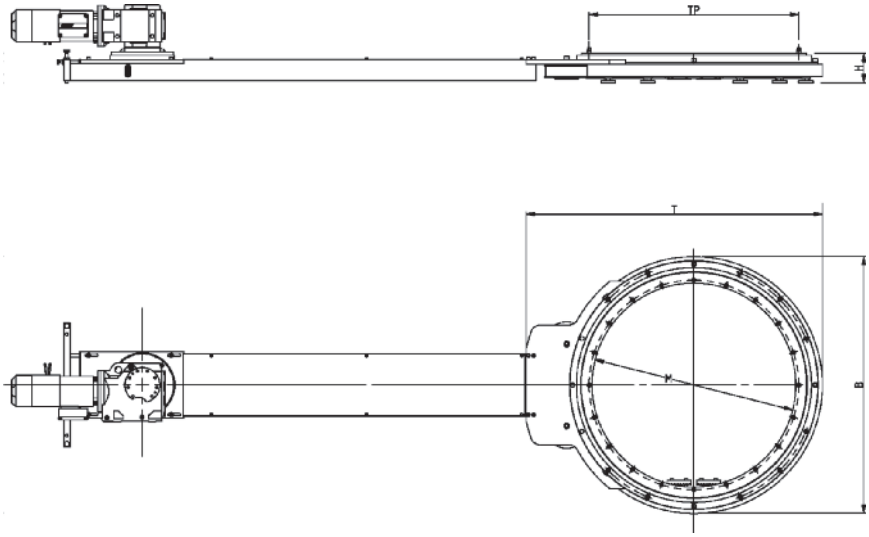
Example: TXE Rotary Table with rack-and-pinion drive

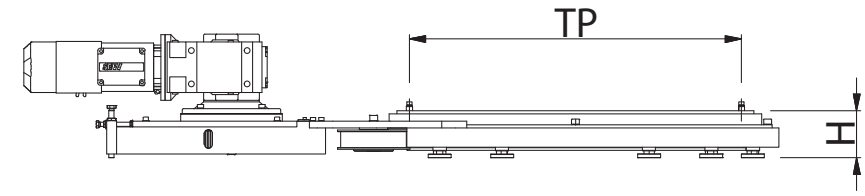


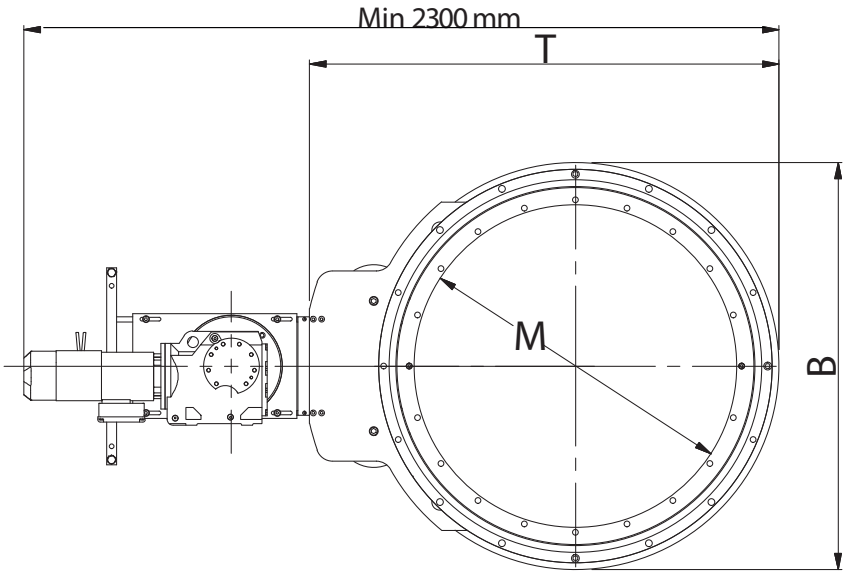
Detail of the drive unit

Due to the simple structure and the optional components, this system is particularly suitable for logistical tasks, such as use with bin changeover systems or fixture stations.

– Rotary table with toothed belt drive
– Drive reversible through 270°
– Exceptionally low-profile configuration
– Optional precision release unit
– Motor can be mounted externally
– Rugged drive unit
– Low-profile construction is ideally suited to bin changeover systems, for example



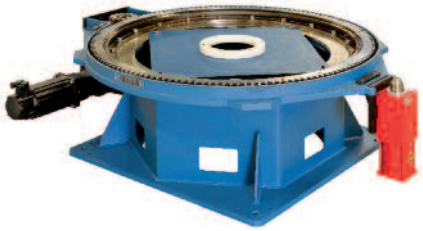


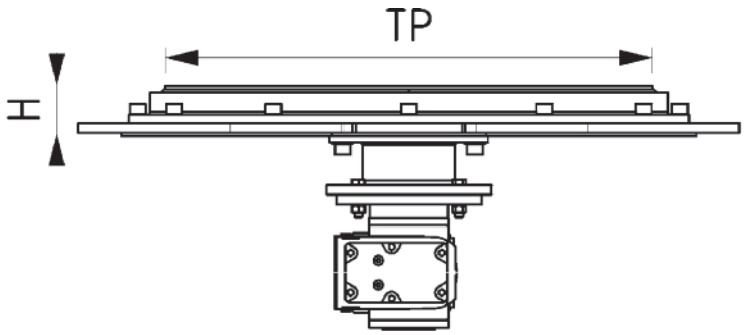


Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight without motor (kg)
TXR 400	332	304	140	560	750	120
TXR 750	662	634	140	890	1080	200
TXR 1100	1012	984	140	1240	1430	250

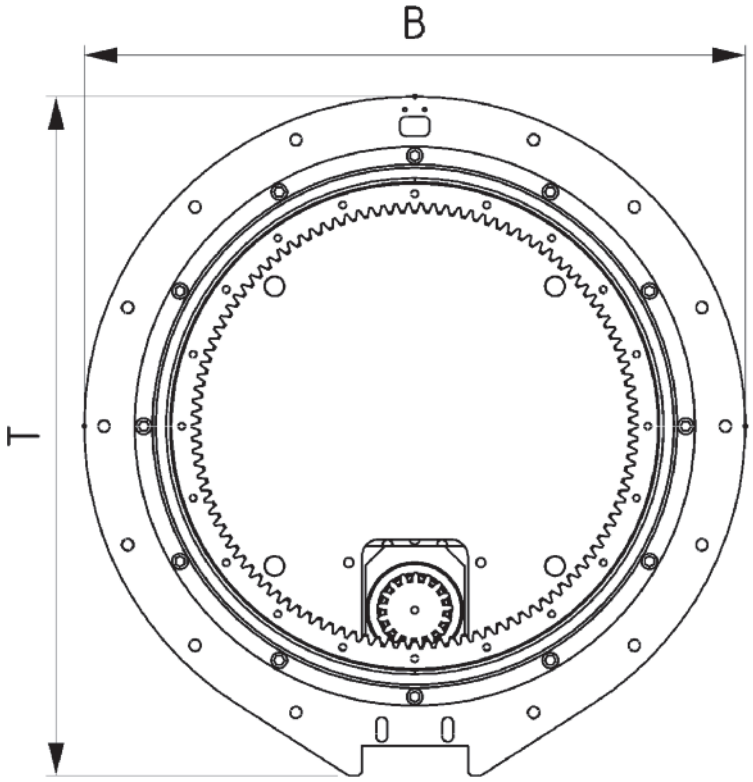
Subject to technical modifications.

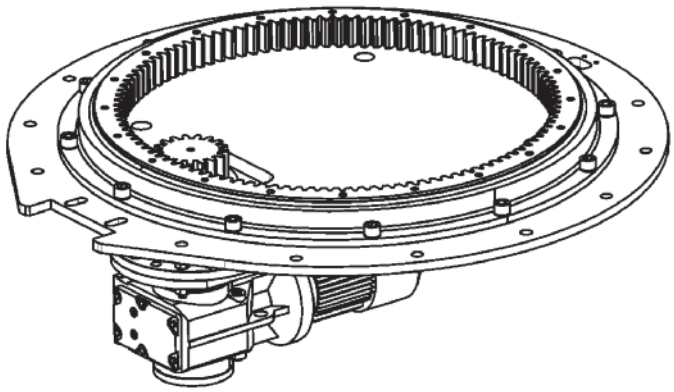
Simplex Rotary Tables – TXE/TXI Series





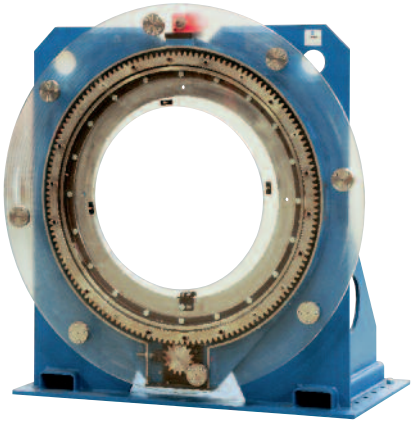
– Servo-Rotary Table, reduced to the basic essentials
– Robust cross roller bearings
– Powered by servo-motor and rack-and-pinion
– Simple robust configuration
– Low overall height
– Optional precision release unit
– E = externally-mounted motor
I = internally-mounted motor
– Optional: basic frame, release unit, dial plate

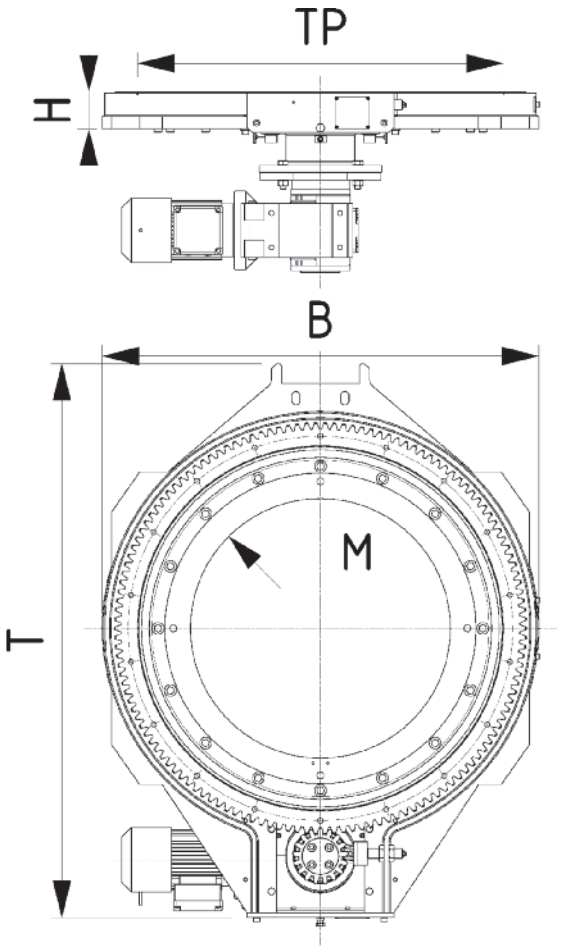




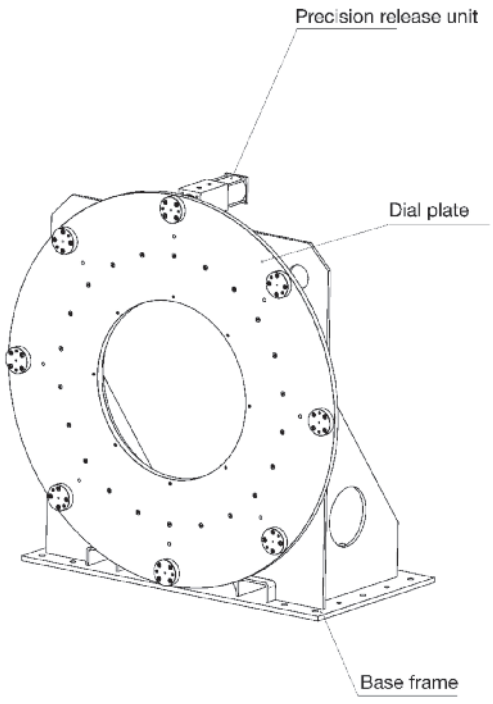
Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
TXI/TXE 400	412,5/415,5	nc/250	71/75,5	680/560	710/770	160/130
TXI/TXE 750	736,5/745,5	nc/530	71/75,5	1000/890	1030/1130	200/220
TXI/TXE 1100	1094/1095,5	nc/830	71/75,5	1400/1253	1430/1498,5	430/300

Subject to technical modifications.





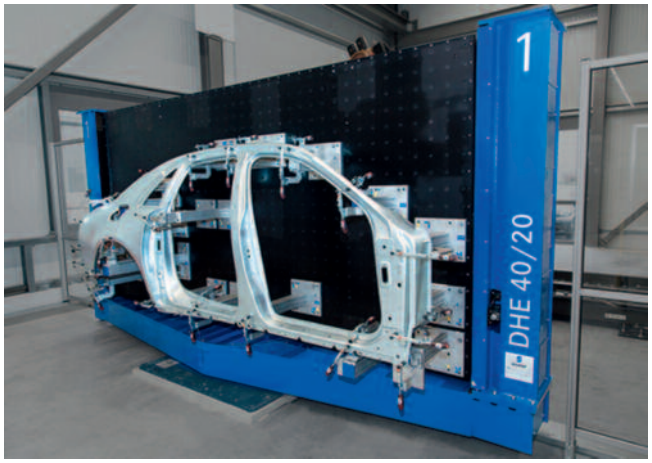
– Servo-Rotary Table for trunnion drive
– Robust cross roller bearings
– Powered by servo-motor and rack-and-pinion
– Simple robust configuration
– Optional: basic frame, release unit, dial plate



Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
TXT 400	415,5	250	75,5	560	770	95
TXT 750	745,5	530	75,5	890	1130	155
TXT 1100	1095,5	830	75,5	1253	1498,5	235

Subject to technical modifications.

Typical applications



SOPAP TXE 750 – ultra-low profile rotary table for Topometric rotating/lifting unit, used in a fully-automated robot-controlled metrology cell (registered utility model by Topometric GmbH)

SOPAP Low-profile bin changeover system based on the TXR 1100, shown here for 2 bins

SOPAP TXE 1100 Tool unit in car body construction, flexible rotating fixture for tools

ROTATING

Compact Rotary Tables

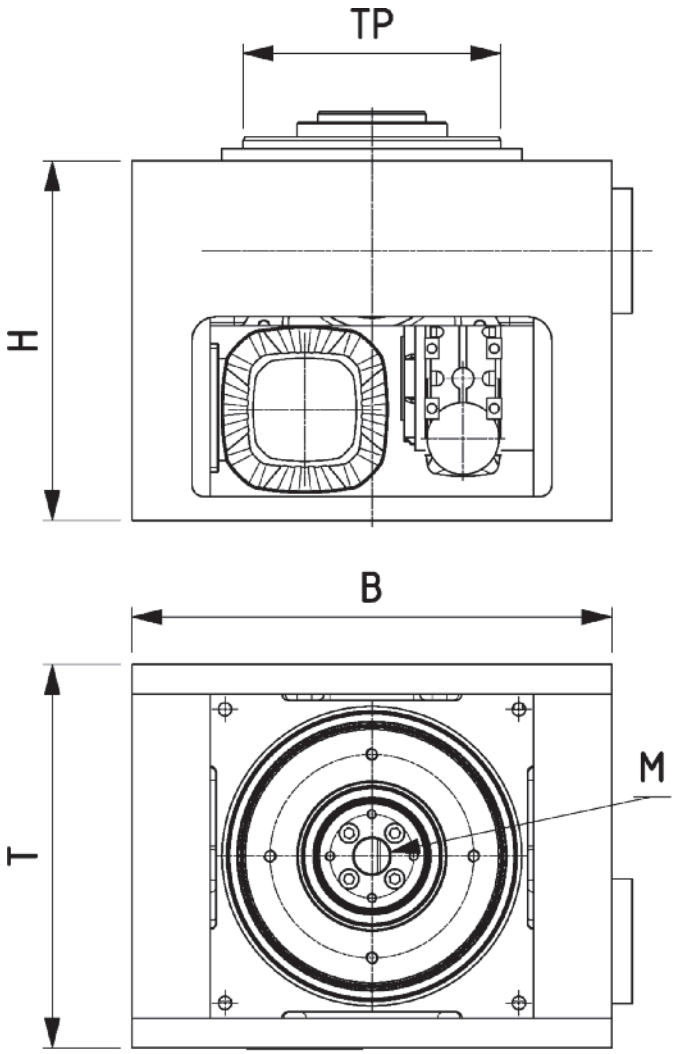
TÜNKERS®
Ingenuity in series.

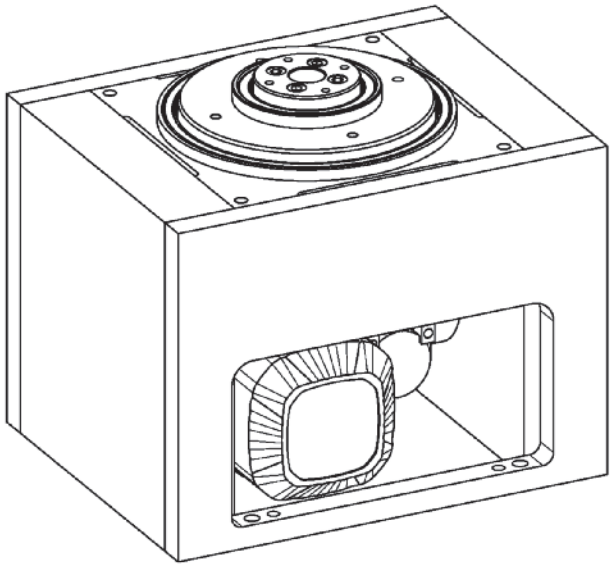
Compact Rotary Tables

The principal characteristics of compact rotary tables are small size combined with precision. As with cam driven rotary tables, the torque generated by the attached geared motor is transmitted to the dial plate by means of roller and roll pin. Typical applications for compact rotary tables include installations in which high speed movement with precision in relatively confined areas are deciding factors. Examples include areas such as materials handling or medical technology, as well as the packaging industry. In addition to high performance, compact rotary tables are characterised by long service life and ease of maintenance.

Cube-type compact rotary table

Cube-Rotary table
– Drive unit integral with housing for optimum, virtually cubic installation capacity
– Lower overall height
– Inductive position sensing cassette for end position feedback
– 25% more power torque due to optimised gear ratios
– Option: version with 24 V motor

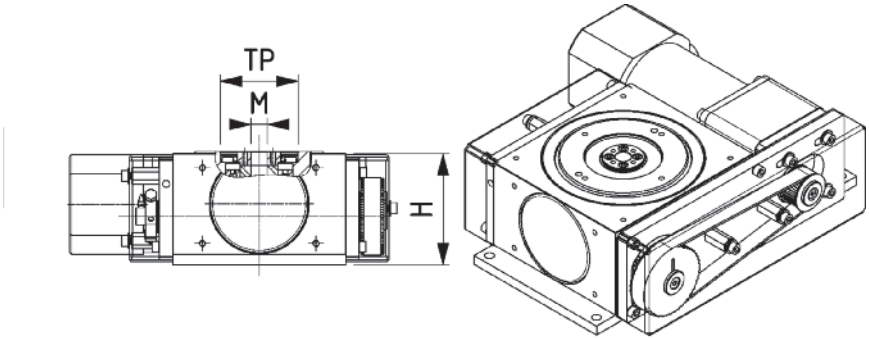




Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
C 100	120	15H8	150	240	180	20
C 300	215	30H8	300	400	320	70
C 500	320	60H8	430	570	410	150

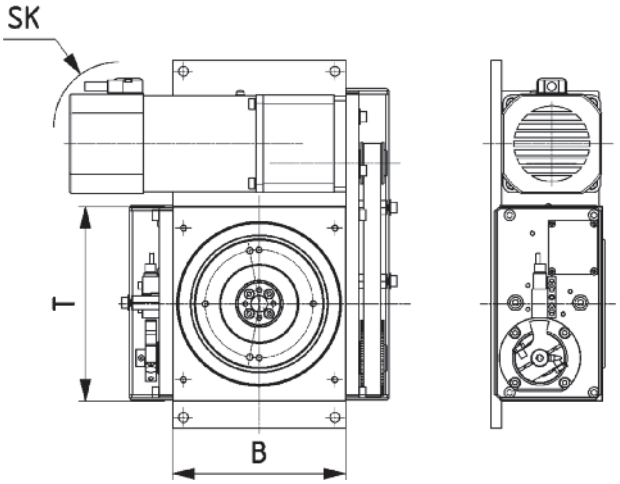
Subject to technical modifications.

TS Series 100



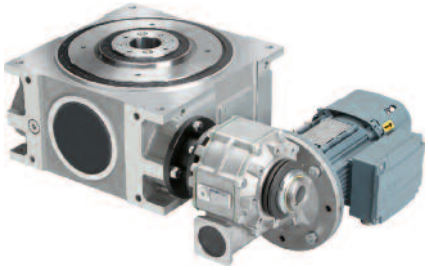
Compact rotary table

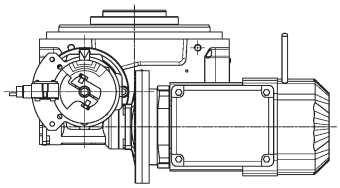
– Compact precision rotary table
– Fixed partitioning with dwell periods of 45°, 60°, 90° and 180°
– Pre-stressed precision cross roller bearings for high loadings and precise synchronisation
– High power density
– Multiple mounting variants
– Optional: Flex version with servo drive, 24 V version

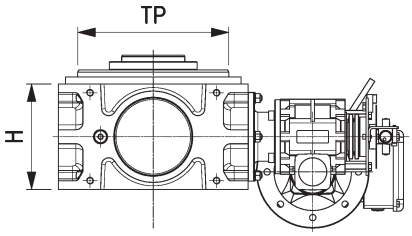


Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
TS 100	120	15H8	103	160	180	20

Subject to technical modifications.

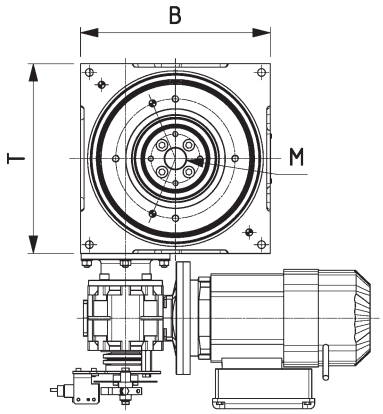


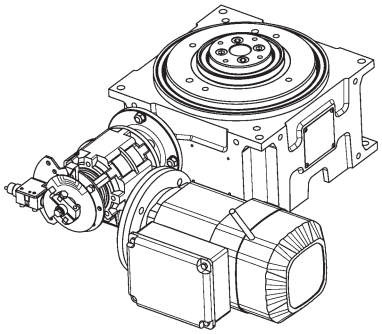




Compact rotary table

– Compact precision rotary table
– Fixed partitioning with dwell periods of 45°, 60°, 90° and 180°
– Pre-stressed precision cross roller bearings for high loadings and precise synchronisation
– High power density
– Multiple mounting variants
– Optional: Flex-Version with servo drive

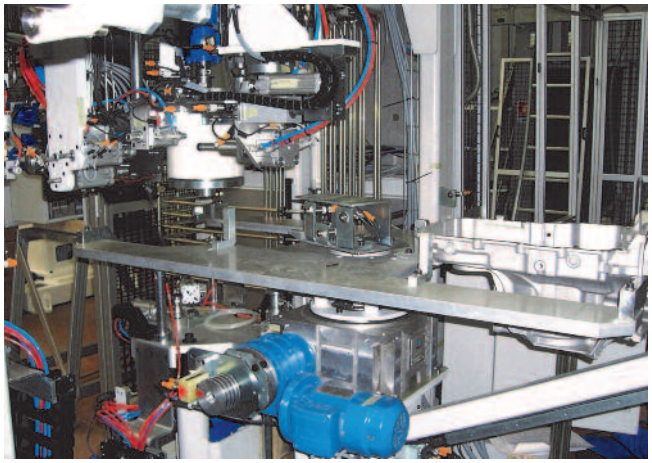




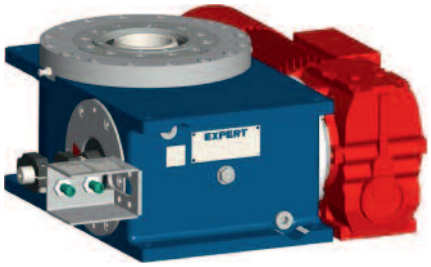
Type	TP Dial plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
TS 200	160	25H8	120	200	200	25
TS 300	215	30H8	150	270	270	50
TS 400	250	50H8	170	320	320	80
TS 500	320	60H8	230	410	410	125

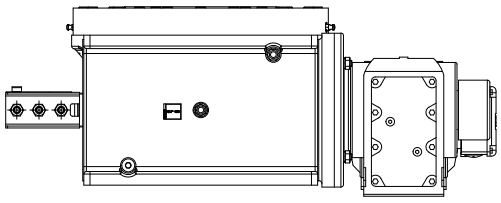
Subject to technical modifications.

Typical applications

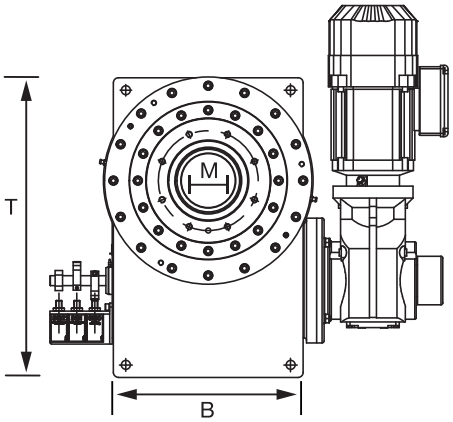


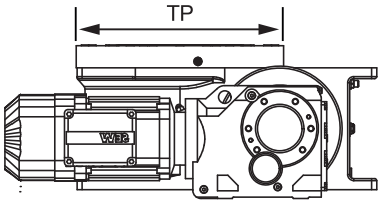
SOPAP TS 200 Illustration of TS Series in use, nailing machine for applications in the mechanical engineering industry

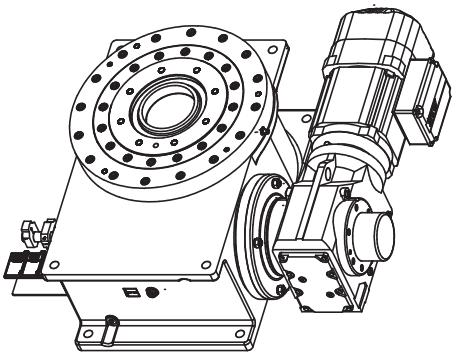




– Low backlash indexing drive unit with globoidal cam
– Hardened and ground precision components
– Quality bearings with high load capacities
– Low overall height







Type	TP Rotating Turntable plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
EGD 80	76	36	126	140	235	30
EGD 100	100	50	150	200	310	50
EGD 125	122	60	191	240	375	80
EGD 160	212	80	190	280	430	150
EGD 200	247	110	290	380	600	275
EGD 250	445	145	355	405	670	400

Subject to technical modifications.

Typical applications

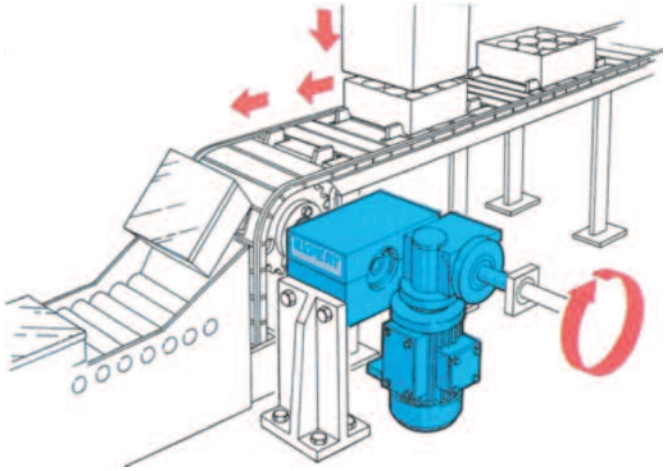
EXPERT 'Windmill' globoidal index drive with precision locking for floor clamping technology on transport tasks

ROTATING

Indexing Drive Units

TÜNKERS®
Ingenuity in series.

Indexing Drive Units

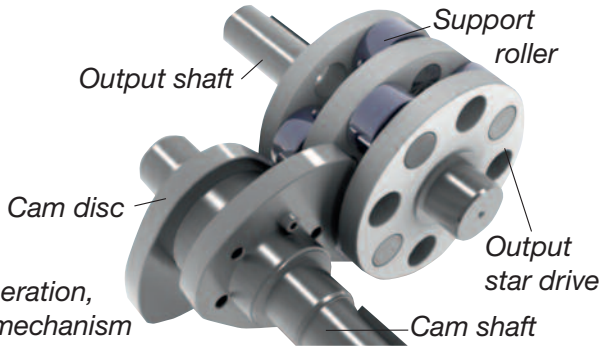


Typical application: parallel shaft index drive in a conveyor installation

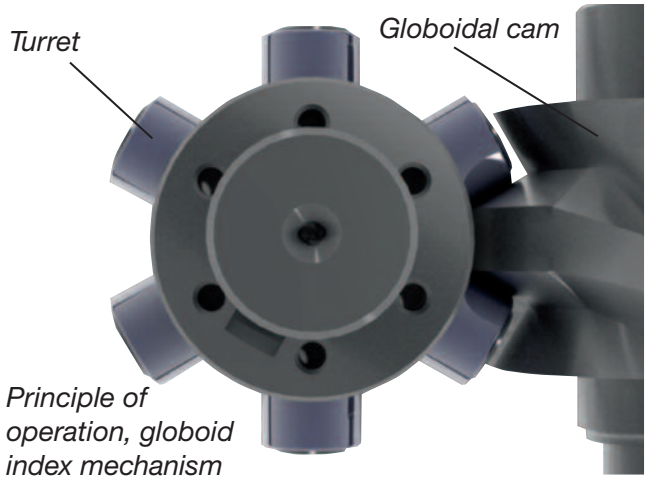
The core element of an indexing system is an indexing drive mechanism. In addition to all the indexing systems, Expert-Tünkers and SOPAP also supply index drive units as a component for customer to integrate in their plant systems.

Parallel Shaft mechanism

Implementation of the indexing mechanism by means of cam discs, which engages with the output flange via support rollers to produce the desire output. In the holding position; the dwell period, zero-backlash and positive-locking position of the output shaft is achived.



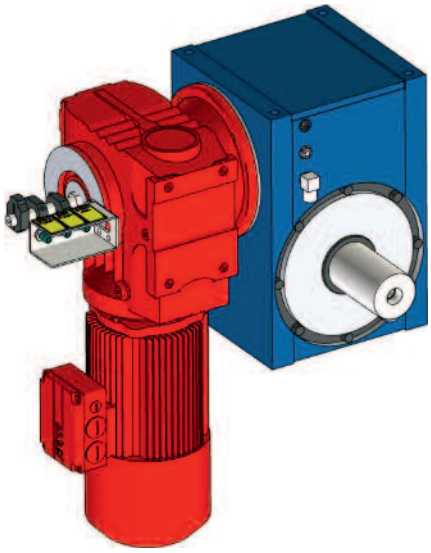
Principle of operation, parallel index mechanism

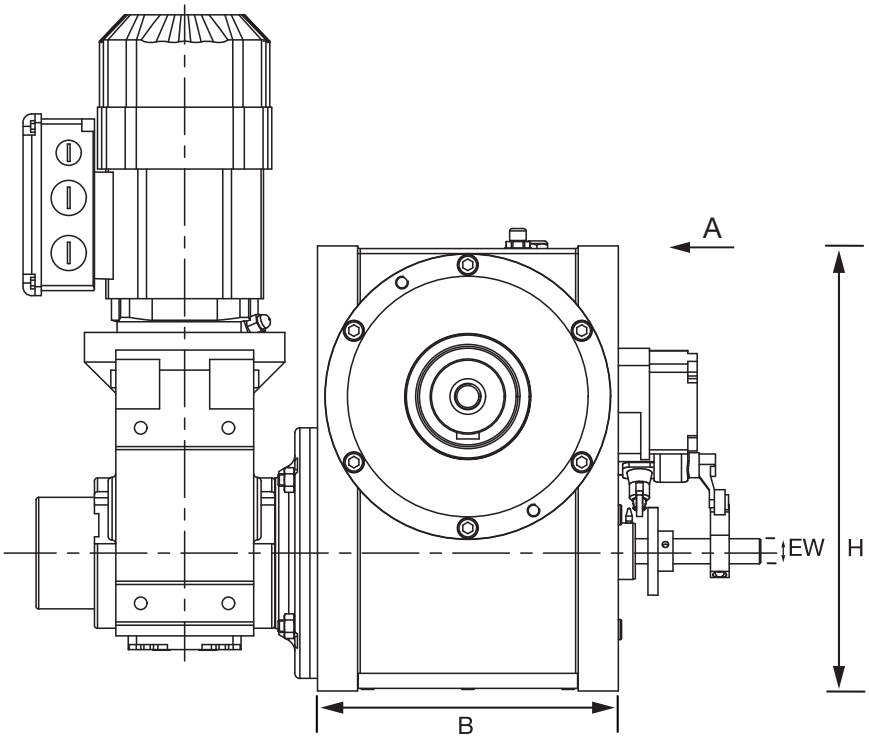


Principle of operation, globoid index mechanism

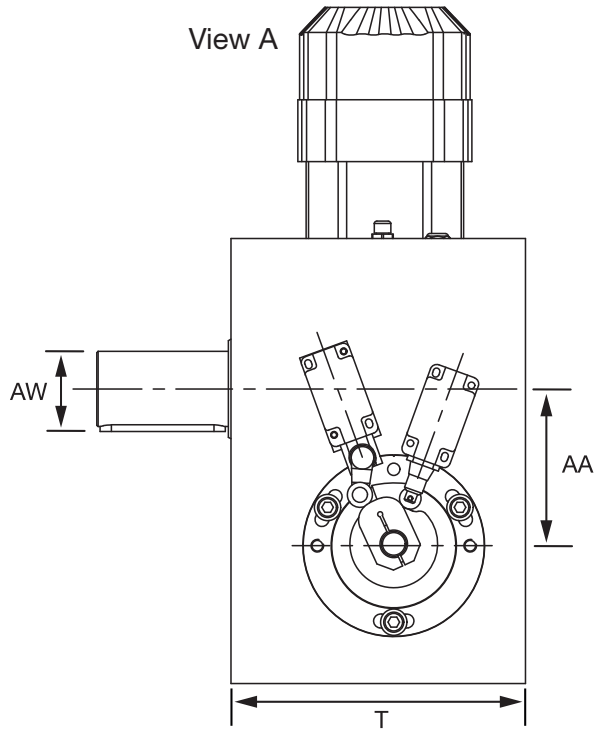
Globoidal Index Drive

Indexing motion obtained via a globoidal cam, which engages with a turret fitted in the support rollers. Vertical arrangement of the input and output shafts. Virtually zero-backlash mechanism due to eccentric mounting of the index cam. Globoidal index drives can also be supplied as rotary tables with dial plates.





– Index drive unit with right-angled alignment of the input and output shaft
– Backlash mechanically reduced by eccentric mounting of the globoided cam
– Ideal for oscillating movements with maximum precision demand

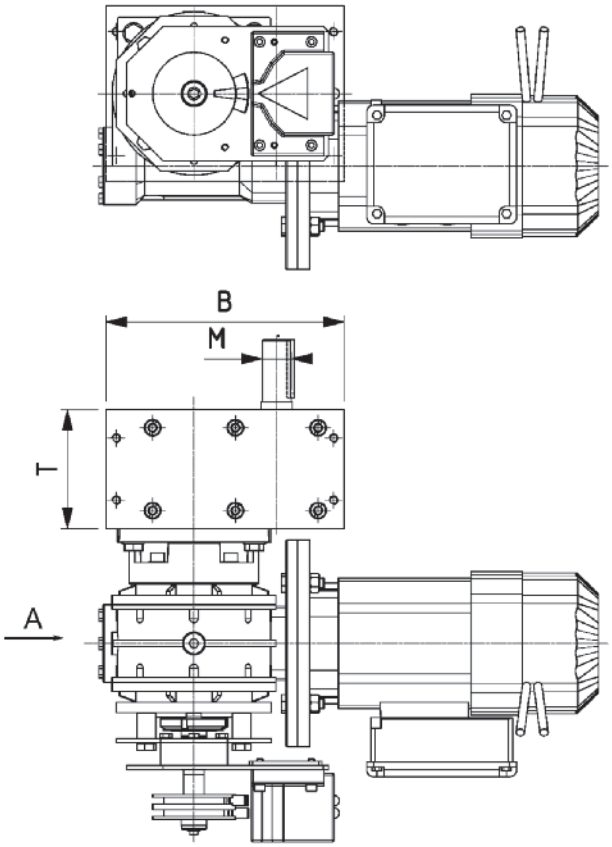


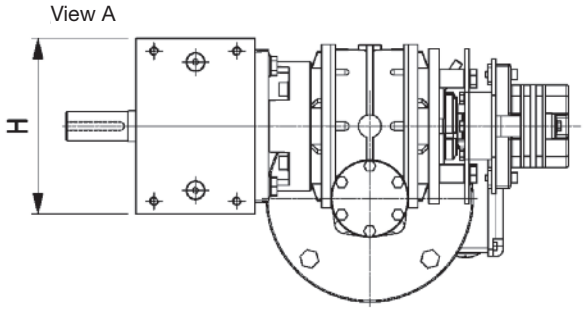
Type	AA Shaft center distance (mm)	H Height (mm)	B Width (mm)	T Depth (mm)	EW Input shaft dia. (mm)	AW Output shaft dia. (mm)	Weight (kg)
EG 50	50	100	140	90	15	28	9
EG 63	63	130	180	120	25	45	14
EG 80	80	160	230	160	40	60	25
EG 100	100	185	280	180	40	65	38
EG 125	125	210	365	220	50	80	63
EG 160	160	270	450	290	50	100	110
EG 200	200	330	550	360	50	130	195
EG 250	250	390	720	500	60	140	385

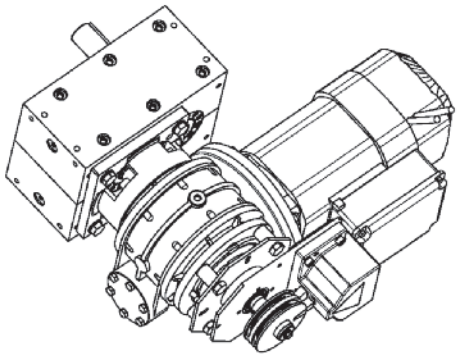
Subject to technical modifications.

PA Series

Parallel transmission
– Parallel shaft index drive
– Parallel arrangement of input and output shaft
– Zero backlash in the locking position
– Typical use: indexing conveyors with oscillating movements
– Optional: second output shaft
– Motor mounting on the same side as the output shaft







Type	H Height (mm)	B Width (mm)	T Depth (mm)	M Output shaft dia. (mm)	Weight (kg)
PA 65	180	90	130	19	7
PA 80	230	115	170	28	15
PA 105	290	140	200	30	25
PA 130	360	170	250	42	52
PA 165	450	210	320	65	102
PA 200	540	240	390	80	172
PA 250	690	290	490	100	320
PA 315	870	390	630	125	570

Subject to technical modifications.

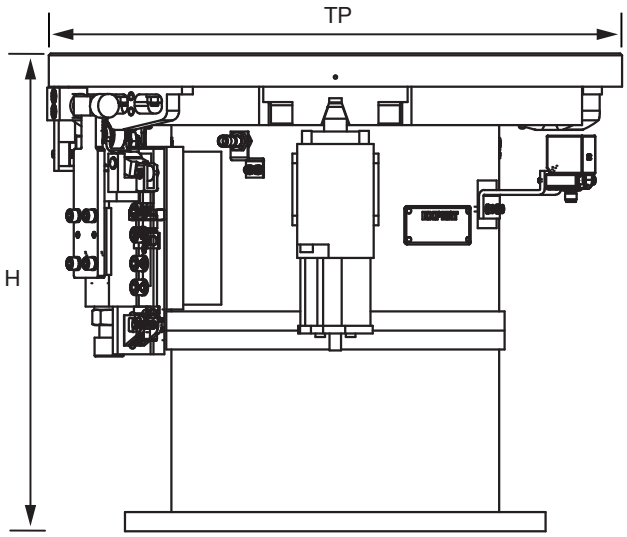
ROTATING

Manual Rotary Tables

TÜNKERS®
Ingenuity in series.

Manual Rotary Tables

Manual turntables are robust and mounted with cost-effective dial plates. The scope of supply is optional with manual jumper: brake activated by a foot switch, as well as end position switches. For simple applications with al low clock speed, these simplest roatating devices are recommended.



– Robust mounted dial plate, which can be used as a fixture for a manually operated device
– Pneumatic positioning
– Individual height
– Optional with positioning, footswitch activable break, as well as limit switch

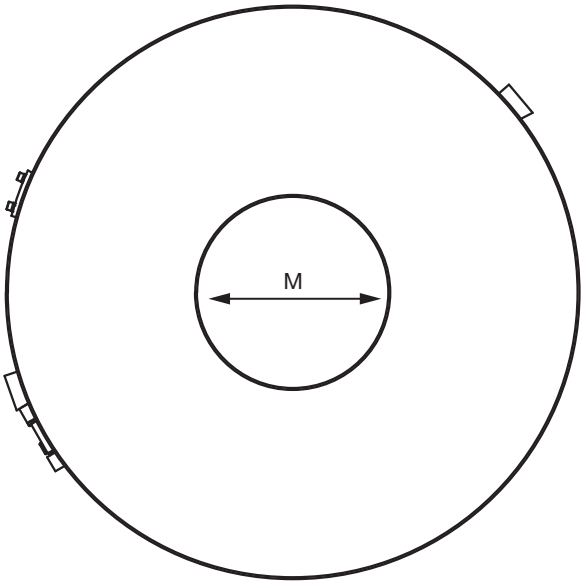
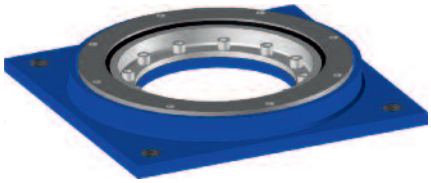


Illustration showing release unit and end position switch

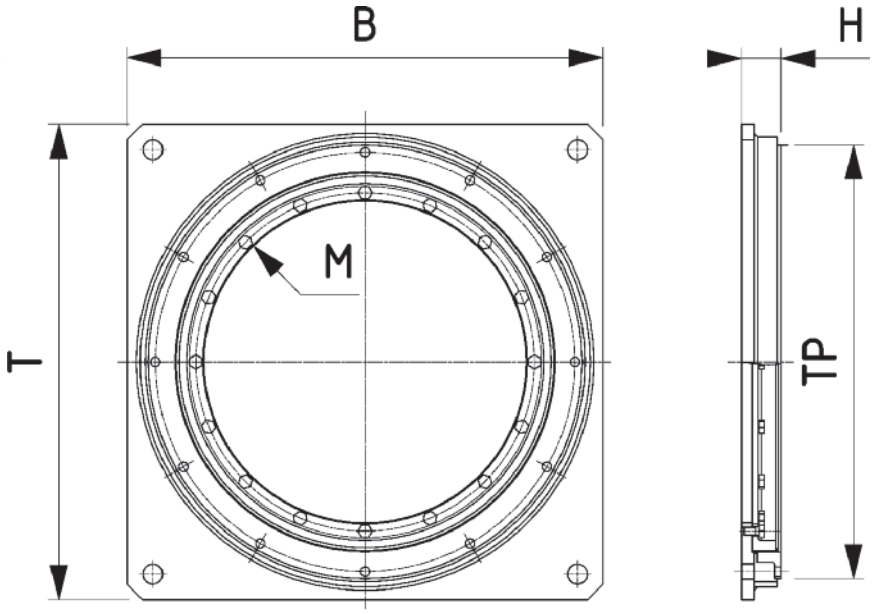
Type	TP turntable plate outside dia. (mm)	M Media access dia. (mm)	H Height (mm)	Weight (kg)
EDM 850	600	200	at least 500	170

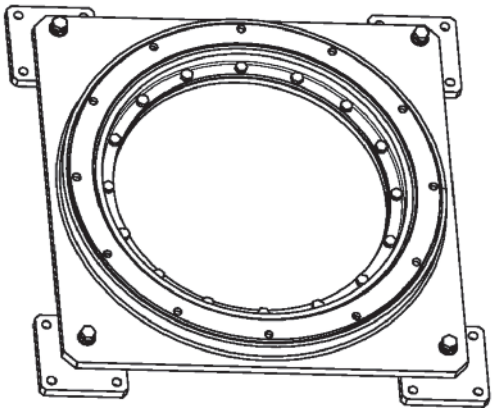
Subject to technical modifications.

Manual Dial Plate – TXM



– Robust mounted dial plate
– Extremely flat design
– Modular extension: footrests, limit switches, crank handle, dial plate





Type	TP turntable plate dia. (mm)	M Media access dia. (mm)	H Overall height (mm)	B Housing width (mm)	T Housing depth (mm)	Weight (kg)
TXM 400	518	300	77	600	600	80
TXM 750	848	630	77	930	930	160
TXM 1100	1198	980	77	1280	1280	250

Subject to technical modifications.