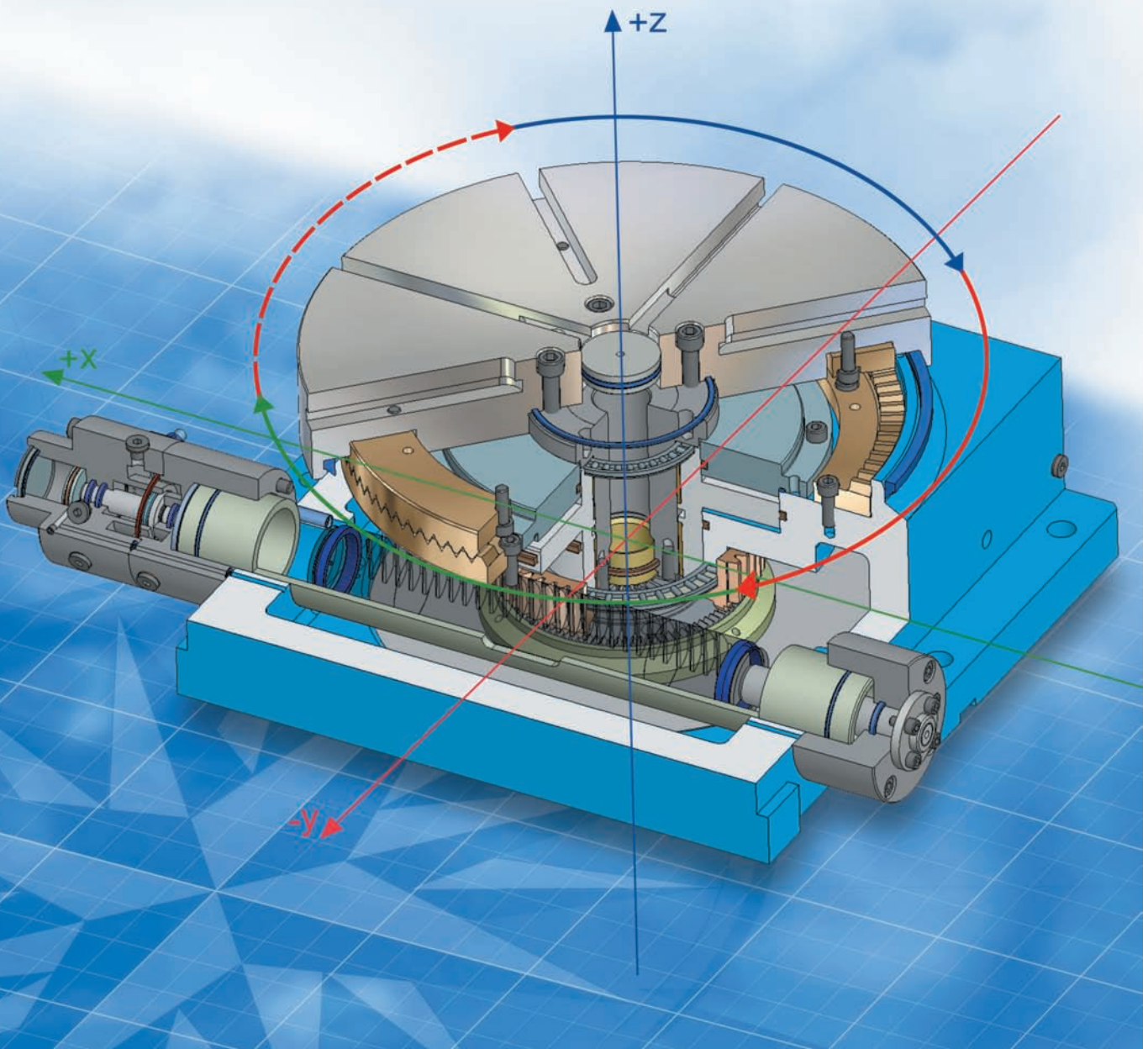




FIBRO[®] Rotary Indexing Table with Face Gear



Product No. 1.2001.00.00.00.01000



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FIBRO – your production partner

FIBRO – an internationally successful company. As a market leader in Standard Parts, Rotary Indexing Tables and Automation, FIBRO provides products and solutions to ensure your production keeps moving. So what is the secret of the FIBRO success? Products developed in-house, tailor-made for the market with uncompromising quality.

But good products are not enough on their own. FIBRO combines excellent products, the know-how and service competence of an internationally focused company, matched to the actual needs of customers - wherever they are.



FIBRO works in Weinsberg



FIBRO works in Hassmersheim



Indexing Tables

From 1962 onwards FIBRO pioneered the design and manufacture of indexing tables and soon gained an enviable reputation.

FIBROTAKT® indexing tables with face gear and ultra-high precision indexing, together with dependable rigidity. Drive options: pneumatic, hydraulic via rack and pinion or electric with worm drive.

FIBROPLAN® NC – rotary tables with backlash adjustment worm drive or torque motor for use in machine tools for universal positioning and round and multi-axis processes (simultaneous operation).

FIBROTOR® revolving tables and indexing tables with positive drive cam, offering very short cycle times even when transporting heavy loads. Mainly used in non-machining applications. Thousands of FIBRO units are in use world-wide as integral key components in high-output machinery.



Standard Parts

Today the Standard Parts Division operates from the Hassmersheim and Weinsberg works, which manufacture a comprehensive range of standard parts and maintain stocks ready for immediate despatch world-wide. The machine tool, mechanical engineering and systems engineering product ranges have been developed to meet the needs of customers.

They include steel die sets, guide elements, oilless guide elements and ground precision components such as punches and matrixes, special steel compression springs, gas springs, forming materials, metal bonding agents, moulding resins, peripheral equipment for pressing and tool making, tool slides with cam or roller slides and hydraulic cam systems.

FIBRO has become renowned world-wide for its comprehensive range of products in stock and its readiness to deliver.



FIBRO is customer-focused – world-wide. A well-developed network of sales and service points and strategic partners ensure that help is always at hand. This ensures technical advance, world-wide experience in applications and rapid availability of products.

Facts and figures on FIBRO:

- founded 1958
- approximately 1,100 staff
- 80 representatives and service stations world-wide
- branches in France, USA, Switzerland and Singapore
- ISO 9001:2000 Quality Assurance and VDA 6.4 certification
- a company in the LÄPPLE Group



FIBRO works in Hassmersheim



FIBRO GSA Automation GmbH

FIBRO has been active in the field of automation and robotics since 1974 and offers one of the most comprehensive ranges in this field. A cleverly designed modular system based on translation units, rotary units, grippers, and guide gantries with trolleys make for easy construction of individual machines and complete systems, ranging from simple pick & place units right up to multi-axis robots. These series-manufactured modules with electric, pneumatic or hydraulic drive, guarantee both high functional reliability and cost-effective prices. The modular gantry systems can solve virtually any transporting problem using linear gantries, surface gantries and extension gantries. These systems are being used successfully in many industries world-wide. Applications include linking machine tools (automotive production), tool changing in machining facilities, palletising work pieces, unloading injection moulding dies, PCB feeders, press linking, palletising, stacking, loading and unloading, transporting and flexible linking, storage and buffering of work pieces of different sizes.



Automation

Since its establishment in 1974 GSA Automation GmbH has developed to become a world market leader in the manufacture of handling equipment and transport systems. Over this period GSA has installed over 200 fully automated systems for all the leading automotive and machine tool manufacturers. GSA has been a member of the FIBRO group since 2004.

Our production range consists of linear and surface gantry systems, transport systems such as precision roller guides, accumulating chain conveyors, pallet accumulating conveyors and flexible decoupling modules, shelf stacking systems and pallet mechanical handling systems.

We can provide our customers with dependable state of the art high performance systems from our standard range. We take complete responsibility for the complete project, starting with designing the solution concepts at the design phase, right through to the final handover of the ready-to-go system.

FIBRO TAKT® at a glance



The FIBRO TAKT® indexing table is produced for use as an indexing axis in machine tools,

such as

- machining centres,
- rotary indexing machines,
- production and manufacturing systems of various types.

The FIBRO TAKT® is used to **mount fixtures and work pieces or as tool holders.**

A characteristic of the FIBRO TAKT® is the principal function of positive locking into a **face gear**, that affords high indexing accuracy and extreme rigidity.

A wide range of types and versions for horizontal and vertical use is available.

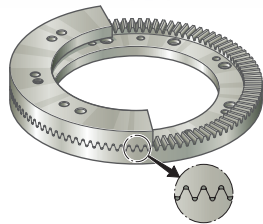
Drive versions: pneumatic
hydraulic
electric



Pneumatic indexing table FIBRO TAKT type: 11.12.4.11.4.01.11.4.0096-T4

table top \varnothing 400 mm,
division 4

concentricity 0,01 mm
run-out 0,008 mm
indexing accuracy $\pm 3''$



Pneumatic indexing table FIBRO TAKT type: 11.11.4

table top 900 × 550 mm,
division 2 (pendulum operation)
working pressure 6 bar
max. mass moment of inertia $J = 17 \text{ kgm}^2$
max. transported load 2 x 100 kg
concentricity 0,01 mm
run-out 0,01 mm
indexing accuracy $\pm 10''$

- indexing accuracy up to $\pm 1''$, corresponding to $\pm 1 \mu$ on the circumference at \varnothing 400 dia.;
- repeatability 10% of the indexing accuracy;
- high rigidity against applied machining forces;
- optimised indexing time due to adjustable hydraulic damping;
- wide range of types and sizes;
- robust and wear-resistant design;
- high reliability and long life;
- special designs for specific applications.



Technical Description

1. Types		Available:	
		From standard range	To customer specifications
Standard for mainly horizontal applications		●	Special purpose applications
Vertical for mainly vertical applications		●	Special purpose applications
Planetary indexing table		Individual units from standard range	Combination to customers specification
Pallet mounting indexing table for pallets to DIN 55201		●	Special purpose applications
Slide housing			●
Multi-axis versions			●
Indexing tables with machine slide		Individual units from standard range	Combination to customers specification

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2. Drive versions

- pneumatic**
- hydraulic**
- electric**

2.1 Pneumatic indexing table (features, characteristics)

- Pneumatic rack and pinion drive with pneumatic clamping into face gears, ideally suitable for:
- light to medium transported loads.
- fast indexing plus high frequency indexing
- maximum applied force and torque accepted due to the use of large diameter face gears and clamping cylinder.
- adjustable speed control and hydraulic damping to suit variable operating conditions.
- up to 11 index selections can be chosen from $1/2^\circ$ to 180° .
- clockwise, anti-clockwise or multi pendulum direction of rotation available
- external or internal control available.

2.2 Hydraulic indexing table (features, characteristics)

- hydraulic rack and pinion drive with hydraulic clamping into face gears, ideally suitable for:
- high transported loads.
- fast indexing plus high frequency indexing.
- maximum applied force and torque accepted by hydraulic clamping.
- adjustable speed control and hydraulic damping to suit variable operating conditions.
- up to 11 index selections can be chosen from $1/2^\circ$ to 180° .
- clockwise, anti-clockwise or multi pendulum direction of rotation available
- external control.

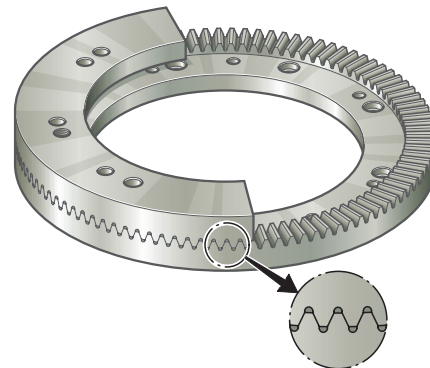
2.3 Electric drive indexing table (features, characteristics)

- with servomotor and gearbox.
 - hydraulic clamping into face gears.
 - random indexing available bi-directional (from $1/4^\circ$ to 360°).
- Control via the machine control (e.g. 4th axis or separately programmable CNC control). separate CNC control is obtainable from the FIBRO programme.
- high transported loads and torques accepted as with hydraulic indexing tables

3. Clamping into face gears

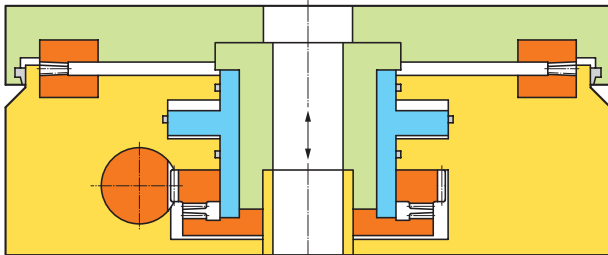
3.1 In the indexing cycle the table top is rotated to the position (pre-position) and then clamped with extreme accuracy into the face gears (final position). The table top is now rigidly clamped without any movement to the housing: indexing accuracies up to $\pm 1.0 \mu$ can be achieved.

The results of rigid clamping into face gears such as high accuracy, the acceptance of the highest forces and torques are the acknowledged features of the FIBROTAKT.

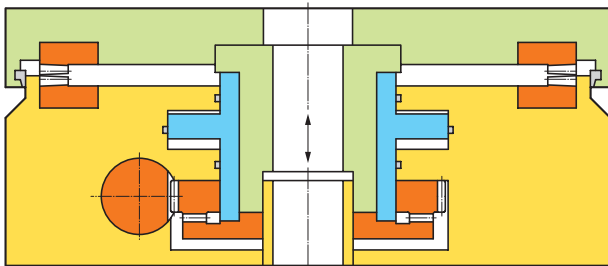


Two versions for clamping into face gears:

with lifting table top,
fitted to all FIBROTAKT sizes 0 to 8, with the advantage of a simple and solid design and extreme indexing accuracy.

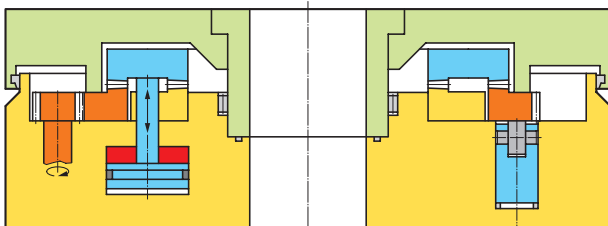


locked

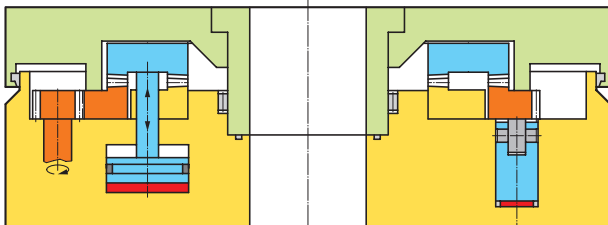


unlocked (stroke approx. 3 – 4 mm)

with non-lifting table top,
fitted to FIBROTAKT indexing tables from size 7 where large masses are to be transported and where for special reasons of the process lifting is not required.



locked



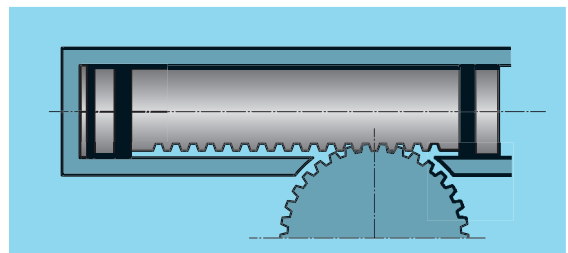
unlocked, stroke < 0.1 mm

4. Indexing cycle

4.1 Pneumatic and hydraulic indexing table with rack-and-pinion drive

The indexing cycle is in 4 stages:

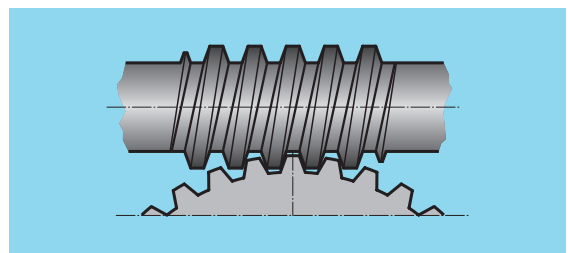
1. Unclamping of the face gears, simultaneously engagement of the drive clutch gear coupling.
2. Rotation of the table top to the index position (pre-position) via the rack and pinion with regulated speed and damping control.
3. Clamping into the face gears, precise centring and positioning (positive locking), simultaneously disengagement of the drive clutch gear coupling.
4. Return of the rack to the start position.



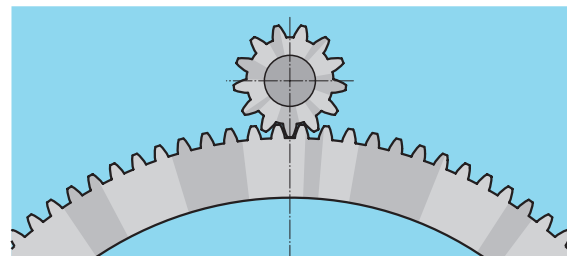
rack drive size 0 – 8, lifting version

4.2 Indexing table with servo drive

1. Unclamping of the face gears.
2. Rotation of the table top via servo motor and gearbox to the index position (pre-position).
3. Clamping into the face gears for precise centring and positioning (positive locking).



worm drive, size 3 – 8, lifting version



pinion – gear ring drive from size 7, non-lifting version

Technical Description



5. Indexing

The index of angular step depends upon the number of teeth in the face gear.

The smallest increment is one tooth.

Any index may be selected that is a multiple of the smallest increment = 1 tooth.

Number of teeth	Possible divisions within 360°
48	2-3-4-6-8-12-16-24-48
56	2-4-7-8-14-28-56
60	2-3-4-5-6-10-12-15-20-30-60
63	3-7-9-21-63
70	2-5-7-10-14-35-70
72	2-3-4-6-8-9-12-18-24-36-72
78	2-3-6-13-26-29-78
80	2-4-5-8-10-16-20-40-80
84	2-3-4-6-7-12-14-21-28-42-84
90	2-3-5-6-9-10-15-18-30-45-90
96	2-3-4-6-8-12-16-24-32-48-96
100	2-4-5-10-20-25-50-100
108	2-3-4-6-9-12-18-27-36-54-108
110	2-5-10-11-22-55-110
112	2-4-7-8-14-16-28-56-112
120	2-3-4-5-6-8-10-12-15-20-24-30-40-60-120
126	2-3-6-7-9-14-18-21-42-63-126
140	2-4-5-7-10-14-20-28-35-70-140
144	2-3-4-6-8-9-12-16-18-24-36-48-72-144
156	2-3-4-6-12-13-26-39-52-78-156
180	2-3-4-5-6-9-10-12-15-18-20-30-36-45-60-90-180
240	2-3-4-5-6-8-10-12-15-16-20-24-30-40-48-60-80-120-240
255	3-5-15-17-51-85-255
360	2-3-4-5-6-8-9-10-12-15-18-20-24-30-36-40-45-60-72-90-120-180-360
480	2-3-4-5-6-8-10-12-15-16-20-24-30-32-40-48-60-80-96-120-240-480
720	2-3-4-5-6-8-9-10-12-15-16-18-20-24-30-36-40-45-48-60-72-80-90-120-144-180-240-360-720
1440	2-3-4-5-6-8-9-10-12-15-16-18-20-24-30-32-36-40-45-48-60-72-80-90-96-120-144-160-180-240-288-360-480-720-1440
Alternative number of teeth on request	
	Modular ranges

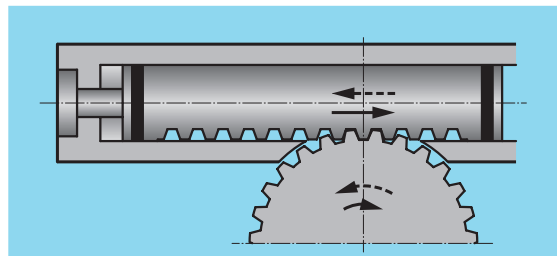
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6. Change of index

6.1 Rack + pinion drive

Fixed index = F (stop)

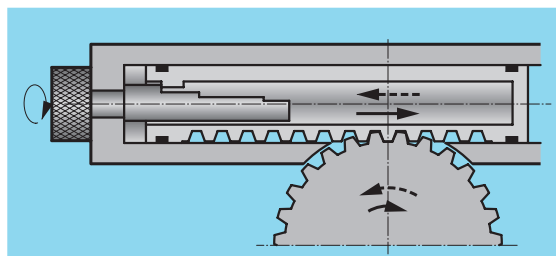
The required index is determined by a stop, the length of which limits the stroke of the rack. Changing the stop it is possible to change to another index on the pneumatic internal control indexing table. This version mainly used where only one index is required.



6.1 Rack + pinion drive

Adjustable index = U (rotary selector knob)

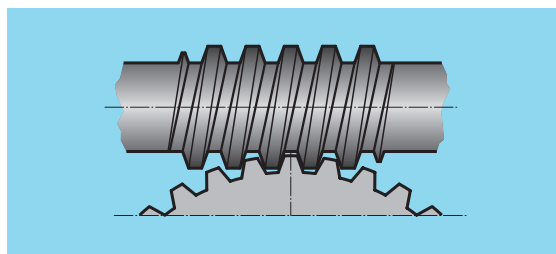
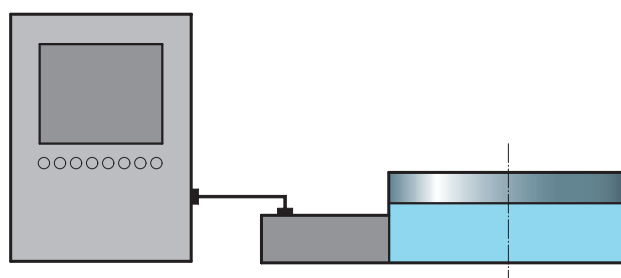
11 alternative indexes may be selected with this version within the limits of the number of teeth of the face gear. The selection is achieved by rotating the selector knob which alters the rack stroke in each case.



6.3 Electric drive

Programmable index change

The electric motor worm drive table with CNC control allows any index within the limits of the number of teeth of the face gear to be selected and reached in either direction or rotation.





7. Control

7.1 Pneumatic internal control indexing table

The control valves are mounted within the housing. The indexing cycle is initiated by actuating the push button on the housing or by a start pulse from a remote control (start pressure impulse).
The cycle is then automatic through mechanically actuated valves.

7.2 Pneumatic external control indexing table

The indexing cycle is achieved by an external electrical control and external control valves. Limit switches are provided within a switch box to signal table clamped, unclamped, rack forward and rack return. The switch box is easily accessible with a plug/socket for limit switch cable outputs.

7.3 Hydraulic external control indexing table

As for 7.2.

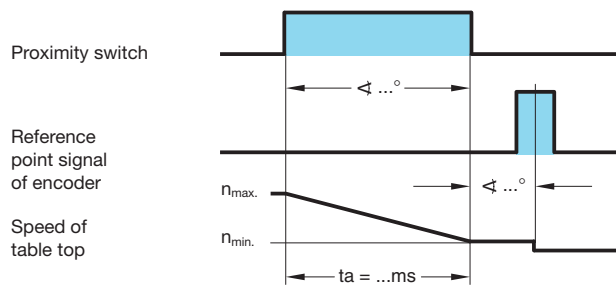
7.4 Electric motor worm drive indexing table with external control

With CNC control random indexing is possible within the number of teeth of the face gear. Indexing control is by an encoder on the motor. The unclamped and clamped condition is signalled by limit switches.

Option

The electrical worm drive indexing table can be equipped with an absolute **reference point** being generated by a proximity switch (DIN 50008) and by the reference signal of the encoder. When the reference point is approached, the proximity switch reduces the speed to creep speed and stops rotation when the encoder reference signal is reached (see data sheets for details). The reference point must be approached in clockwise rotation.

Clockwise rotation



8. Hydraulic damping, speed of rotation

The deceleration of the rotation masses at the end of indexing is by a hydraulic damper on the pneumatic and the hydraulic indexing tables. The damper is adjustable to suit various operating conditions and applications. The high efficiency damper assembly is reflected in the fast indexing times and high transported loads - see technical data. The rotational speed is regulated by a built-in throttle valve.

9. Accessories

- Switch control
- Mechanical index control
- Position detection
- Monitoring of damping pressure
- Rotary manifolds (pneumatic, hydraulic, electric)



9. Accuracy

Due to the high precision in the production of important components such as face gears, table top and the housing, plus the utmost care taken in assembly, extreme accuracy (indexing and run out accuracy and parallelism) in the completed indexing table is achieved. A test certificate of all measured accuracies is provided with each table.

To suit the actual requirements of the specific application, the FIBROTAKT range offers **four accuracy classes** with the listed tolerances for the indexing accuracy.

See data sheets for details.

Conversion of angle seconds into radians over table top circumference in mm

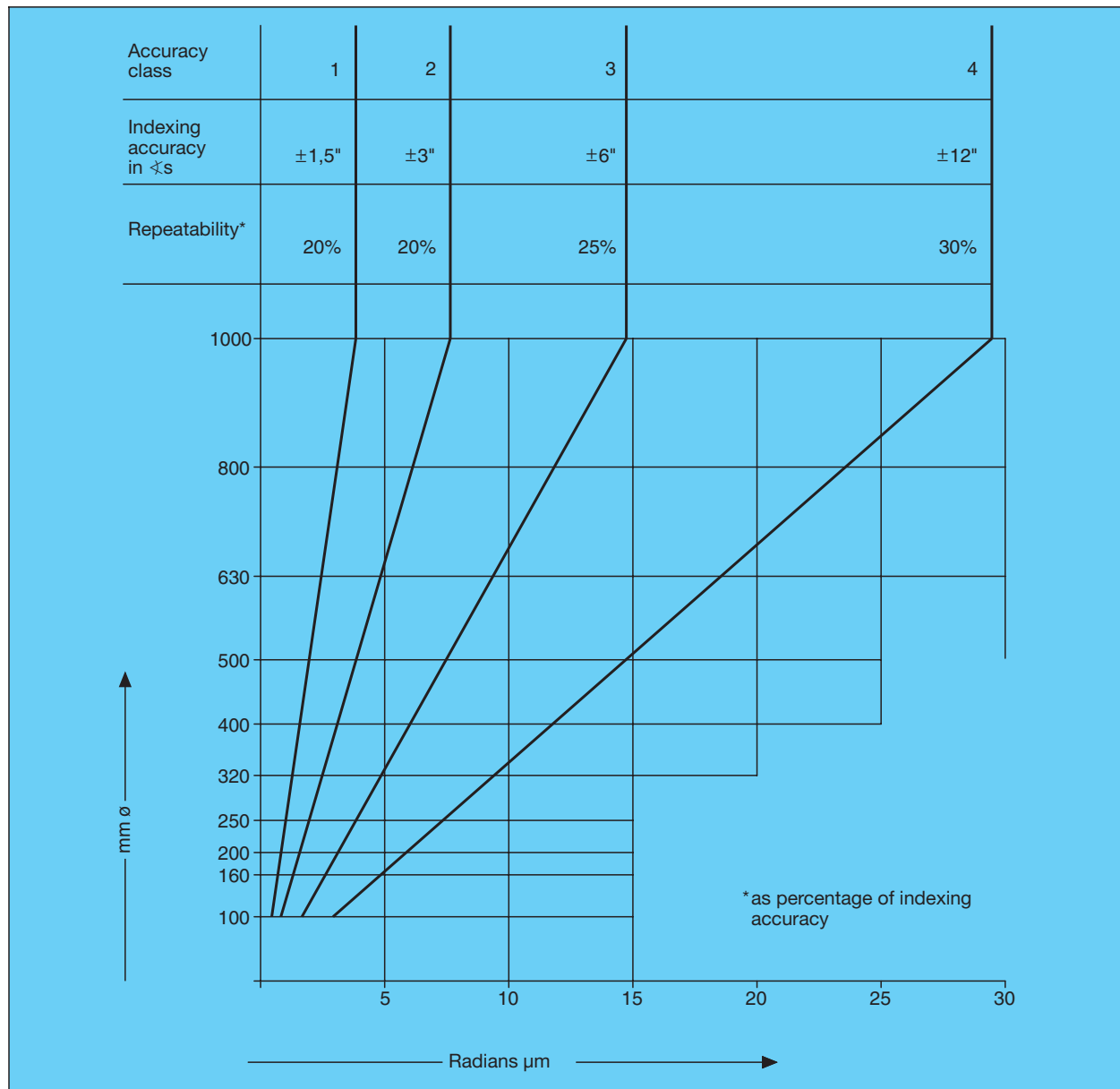
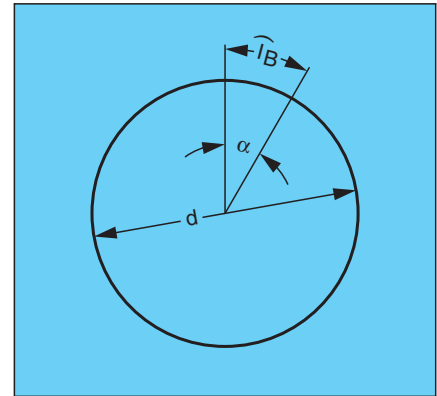
$$\widehat{l}_B = \frac{\alpha \cdot d}{413000}$$

\widehat{l}_B = radians in mm

α = angle seconds


d = circle diameter in mm

$$\alpha = \frac{413000 \cdot \widehat{l}_B}{d}$$



Programme Overview FIBROTAKT®

Type Standard

1. Type defined by order number digits	Type Standard		indexing with lifting table top				
	Drive Particulars pneumatic indexing table with internal control (rack + pinion drive) Data Sheet page		11.11.0. 14, 15	11.11.1. 16, 17	11.11.2. 18, 19	11.11.3. 20, 21	11.11.4. 22, 23
	pneumatic indexing table with external control (rack + pinion drive) Data Sheet page			11.12.2. 24, 25	11.12.3. 26, 27	11.12.4. 28, 29	
	hydraulic indexing table with external control (rack + pinion drive) Data Sheet page						
	indexing table with electric motor worm drive Data Sheet page						
Size			0	1	2	3	4
2. Major Dimensions	Table Top Diameter	mm	100	160	200	320	400
		mm	–	–	250	400	500
	height to table face	mm	90	120	145	160	205
	centre height	mm	–	–	–	–	–
	number of teeth	Standard (rack + pinion drive)	72	72	72	96	96
		max.	96	96	120	144	180
		standard (worm drive)	–	–	–	–	–
3. Drive Details	working pressure	pneumatic bar	6	6	6	6	6
		hydraulic bar					
4. Load data	Machining forces (acting on clamped table top):						
	table top diameter	∅	100	160	200	320	400
	machining forces	N	5000	12500	15000	20000	30000
	tangential moment	Nm	130	380	605	2300	5000
	tilting moment	Nm	72	205	325	1280	2700
	Table loads on horizontal table top:						
	load – within table top diameter	kg	20	40	70	350	500
	mass moment of inertia	kgm ²	0,025	0,13	0,5	4,5	10
	torque of eccentric load	Nm	30	70	115	400	700
	Table loads on vertical table top:						
	load - within table top diameter	kg	8	16	28	140	200
	mass moment of inertia	kgm ²	0,025	0,13	0,5	4,5	10
	torque of table load	Nm	17	39	63	225	540
	torque of eccentric load	Nm	–	–	–	–	79
table load with tailstock	kg	20	40	70	350	500	
5. Accuracy	Class		[4]	[3]	[2]	[1]	
	indexing accuracy in seconds	∠s	±12	±6	±3	±1,5	
	repeatability as a percentage of indexing accuracy	%	30	25	20	20	
6. Indexing Time rack + pinion drive/ worm drive	at mass moment of inertia from load	kgm ²	0,025	0,13	0,5	4,5	10
	for T 6 = 60°	s	0,38	0,7	0,9	1,4	2,0
	for T 4 = 90°	s	0,75	1,0	1,2	1,7	2,3

1 - 5261 - 2003 - 2 °

														with non-lifting table top																							
11.12.5. 30, 31		11.12.6. 32, 33		11.13.2. 34, 35		11.13.3. 36, 37		11.13.4. 38, 39		11.13.5. 40, 41		11.13.6. 42, 43		11.13.7. 44, 45		11.13.8. 46, 47		11.16.3. 48, 49		11.16.4. 50, 51		11.16.5. 52, 53		11.16.6. 54, 55		11.16.7. 56, 57		11.16.8. 58, 59		10.16.7. 60, 61		10.16.8. 62, 63		10.16.9. 64, 65		10.16.10. 66, 67	
5		6		2		3		4		5		6		7		8		7		8		9		10													
500		630		200		320		400		500		630		800		1000		800		1000		1250		1600													
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800		1000		170		600		1000		1200		1500		2500		3600 3600		300		700		900		1500													
250		300		40		200		300		400		450		1000		1500		-		-		-		-													
25		40		0,75		6,6 20		15 45		45		100		350		700		-		-		-		-													
440		530		94		335		800		660		790		1750		2750		-		-		-		-													
150		160		-		100		390		740		800		1800		2800		-		-		-		-													
630		800		100		500		750		1000		1500		2400		3800		-		-		-		-													
				④				③				②				①																					
				±12				±6				±3				±1,5																					
				30				25				20				20																					
25		40		0,75		6,6 20		15 45		45 100		100 250		350 700		750 1500		400		1500		3300		6900													
2,7		3,4		0,9		1,4 1,1		2,0 1,2		2,4 1,5		3,0 1,5		3,2 1,9		2,9 2,0		1,8		2,4		2,8		4,5													
3,1		3,9		1,0		1,5 1,2		2,1 1,4		2,7 1,7		3,4 1,7		3,6 2,1		3,2 2,4		2,1		2,8		3,3		5,1													



11.11.0. Technical data

1. Type designation FIBROTAKT "indexing with lifting table top" Type <u>Standard, Pneumatic Indexing Table, with internal control</u> Size <u>0</u> working position <u>any</u>		Block 1 11.11.0.																																																	
2. Table top dimensions Table top execution <u>100 mm</u> Table top dimension ○ round without Tee-slots <input type="checkbox"/> <u>05</u> ⊕ round with Tee-slots <input type="checkbox"/> _____ _____ _____ to customer's drawing <input type="checkbox"/> <u>00</u>		Block 2 05																																																	
3. Table clamping <u>pneumatic</u> <input type="checkbox"/> <u>4</u>		Block 3 4																																																	
4. Rack + pinion drive max. index angle <u>up to 180° (from T2)</u> <u>up to 120° (from T3)</u> rotation direction <u>standard: clockwise</u> <input type="checkbox"/> <u>11</u> F see point 5 <u>anti-clockwise</u> <input type="checkbox"/> F <u>pendulum or multiple</u> <input type="checkbox"/> F <u>pendulum rotation</u> <input type="checkbox"/> F		Block 4 <input type="checkbox"/>																																																	
5. Change of index (see page 9) <u>fixed division "F"</u> <input type="checkbox"/> <u>11</u> <u>variable division "U"</u> <input type="checkbox"/> <u>max. 11 divisions</u>		Block 5 11																																																	
6. Accuracy (at pressure/diameter: 6 bar/100 mm) Class <u>4</u> <u>3</u> <u>2</u> <u>1</u> indexing accuracy seconds $\nless s$ ± 12 ± 6 ± 3 $\pm 1,5$ radians at dia. $\varnothing 100$ mm $\pm 0,003$ $\pm 0,0015$ $\pm 0,0008$ $\pm 0,0004$ repeatability as percentage of indexing accuracy % 30 25 20 20 runout of table top centre bore mm TIR 0,040 0,018 0,008 0,005 max.wobble of table top mm TIR 0,020 0,012 0,008 0,005 parallelism: table top face/ mounting face mm TIR 0,030 0,015 0,010 0,008 parallelism: base tenon/ table top tenon mm/100 mm TIR 0,020 0,006 0,004 0,004		Block 6 <input type="checkbox"/>																																																	
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8. Operating data pressure medium <u>air</u> working pressure bar <u>6</u> (min. 5, max. 8) air consumption per cycle l <u>0,59</u> (T4) table lift mm approx. <u>3</u> shipping weight (table dia. 100 mm) kg approx. <u>8</u>																																																			
9. Indexing time (at working pressure 6 bar) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>index</td> <td>T</td> <td>2</td> <td>3</td> <td>4</td> <td>6</td> <td>8</td> </tr> <tr> <td>mass moment of inertia (max.)</td> <td colspan="6">kgm² 0,025</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>0,95</td> <td>0,75</td> <td>0,50</td> <td>0,38</td> <td>0,35</td> </tr> <tr> <td>indexing frequency</td> <td>per min⁻¹</td> <td>41</td> <td>50</td> <td>65</td> <td>82</td> <td>90</td> </tr> <tr> <td>mass moment of inertia (^{2/3} max.)</td> <td colspan="6">kgm² 0,017</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>0,92</td> <td>0,72</td> <td>0,47</td> <td>0,35</td> <td>0,32</td> </tr> <tr> <td>indexing frequency</td> <td>per min⁻¹</td> <td>42</td> <td>51</td> <td>66</td> <td>84</td> <td>92</td> </tr> </table>		index	T	2	3	4	6	8	mass moment of inertia (max.)	kgm ² 0,025						indexing time (unclamp, rotate, clamp)	s	0,95	0,75	0,50	0,38	0,35	indexing frequency	per min ⁻¹	41	50	65	82	90	mass moment of inertia (^{2/3} max.)	kgm ² 0,017						indexing time (unclamp, rotate, clamp)	s	0,92	0,72	0,47	0,35	0,32	indexing frequency	per min ⁻¹	42	51	66	84	92	
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Example of ordering code number **11.11.0** . **05** . **4** . . **11** . . -T...

Right of alterations reserved



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 100 mm	N	5000	①
tangential moment	Nm	130	②
tilting moment	Nm	72	③

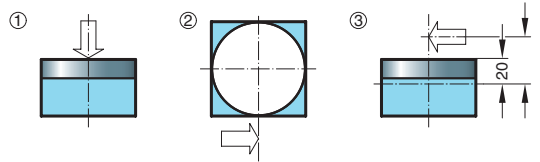


Table loads – carried on horizontal table top:

load, carried within 100 mm dia.	kg	20	④
mass moment of inertia of table load	kgm ²	0,025	⑤
moment of eccentric load	Nm	30	

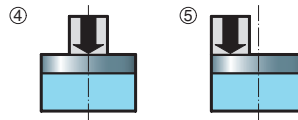
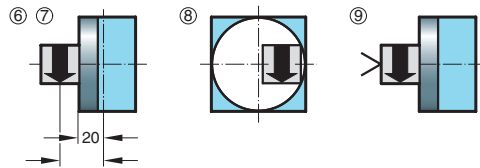
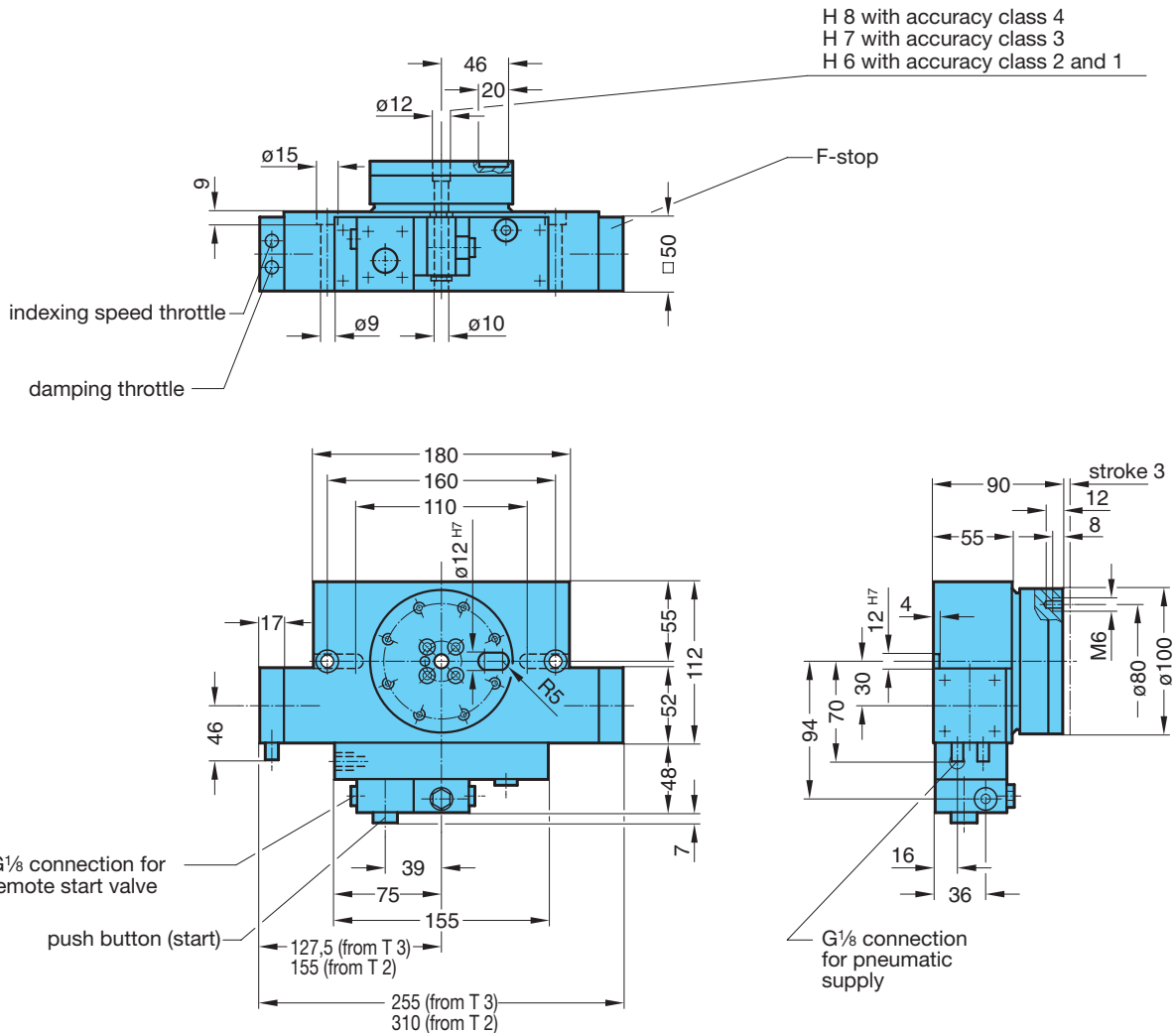


Table loads – carried on vertical table top:

load, carried within 100 mm dia.	kg	8	⑥
mass moment of inertia of table load	kgm ²	0,025	
torque of table load	Nm	17	⑦
moment of eccentric load	Nm	-	⑧
table load with tailstock	kg	20	⑨



11. Dimensions



1-5284-4-1 0



11.11.1. Technical data

1. Type designation FIBRO TAKT "indexing with lifting table top" Type <u>Standard, Pneumatic Indexing Table, with internal control</u> Size <u>1</u> working position <u>any</u>		Block 1 <div style="border: 1px solid black; padding: 2px; display: inline-block;">11.11.1.</div>																																																	
2. Table top dimensions <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Table top execution</td> <td style="width: 30%;">Table top dimension</td> <td style="width: 40%;"></td> </tr> <tr> <td>○ round without Tee-slots</td> <td>160 mm</td> <td></td> </tr> <tr> <td>⊕ round with Tee-slots</td> <td><input checked="" type="checkbox"/> 11</td> <td><input type="checkbox"/> radial</td> </tr> <tr> <td></td> <td><input type="checkbox"/> 13</td> <td></td> </tr> <tr> <td colspan="2">to customer's drawing</td> <td><input type="checkbox"/> 00</td> </tr> </table>		Table top execution	Table top dimension		○ round without Tee-slots	160 mm		⊕ round with Tee-slots	<input checked="" type="checkbox"/> 11	<input type="checkbox"/> radial		<input type="checkbox"/> 13		to customer's drawing		<input type="checkbox"/> 00	Block 2 <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>																																		
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6. Accuracy (at pressure/diameter: 6 bar/160 mm) <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Class</td> <td style="width: 10%;"></td> <td style="width: 10%;"><input checked="" type="checkbox"/> 4</td> <td style="width: 10%;"><input type="checkbox"/> 3</td> <td style="width: 10%;"><input type="checkbox"/> 2</td> <td style="width: 10%;"><input type="checkbox"/> 1</td> </tr> <tr> <td>indexing accuracy seconds</td> <td>∠s</td> <td>±12</td> <td>±6</td> <td>±3</td> <td>±1,5</td> </tr> <tr> <td> radians at dia. Ø160</td> <td>mm</td> <td>±0,005</td> <td>±0,0024</td> <td>±0,0012</td> <td>±0,0006</td> </tr> <tr> <td>repeatability as percentage of indexing accuracy</td> <td>%</td> <td>30</td> <td>25</td> <td>20</td> <td>20</td> </tr> <tr> <td>runout of table top centre bore</td> <td>mm TIR</td> <td>0,040</td> <td>0,018</td> <td>0,010</td> <td>0,005</td> </tr> <tr> <td>max.wobble of table top</td> <td>mm TIR</td> <td>0,030</td> <td>0,015</td> <td>0,009</td> <td>0,005</td> </tr> <tr> <td>parallelism: table top face/ mounting face</td> <td>mmn TIR</td> <td>0,035</td> <td>0,020</td> <td>0,012</td> <td>0,008</td> </tr> <tr> <td>parallelism: base tenon/ table top tenon</td> <td>mm/ 100 mm TIR</td> <td>0,020</td> <td>0,006</td> <td>0,004</td> <td>0,004</td> </tr> </table>		Class		<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	indexing accuracy seconds	∠s	±12	±6	±3	±1,5	radians at dia. Ø160	mm	±0,005	±0,0024	±0,0012	±0,0006	repeatability as percentage of indexing accuracy	%	30	25	20	20	runout of table top centre bore	mm TIR	0,040	0,018	0,010	0,005	max.wobble of table top	mm TIR	0,030	0,015	0,009	0,005	parallelism: table top face/ mounting face	mmn TIR	0,035	0,020	0,012	0,008	parallelism: base tenon/ table top tenon	mm/ 100 mm TIR	0,020	0,006	0,004	0,004	Block 6 <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>	
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Example of ordering code number 11.11.1 . 4 . 11 . 1 -T...



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 160 mm	N	12 500	①
tangential moment	Nm	380	②
tilting moment	Nm	205	③

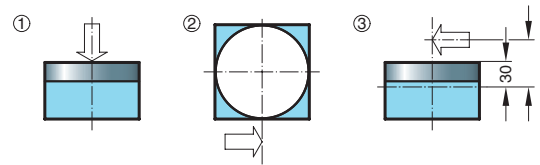


Table loads – carried on horizontal table top:

load, carried within 160 mm dia.	kg	40	④
mass moment of inertia of table load	kgm ²	0,13	⑤
moment of eccentric load	Nm	70	

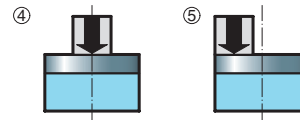
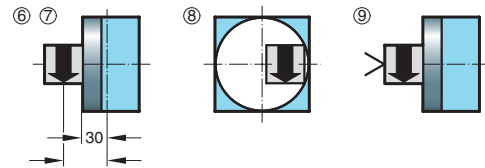
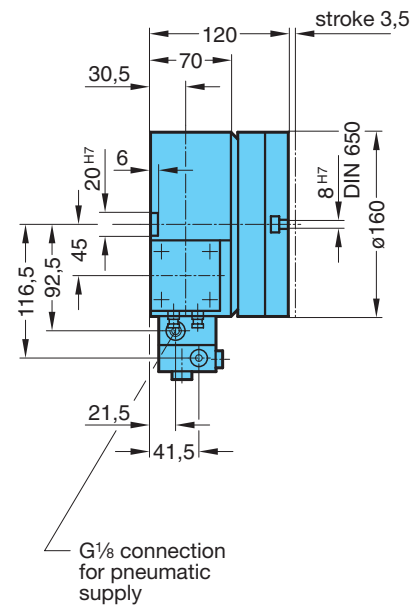
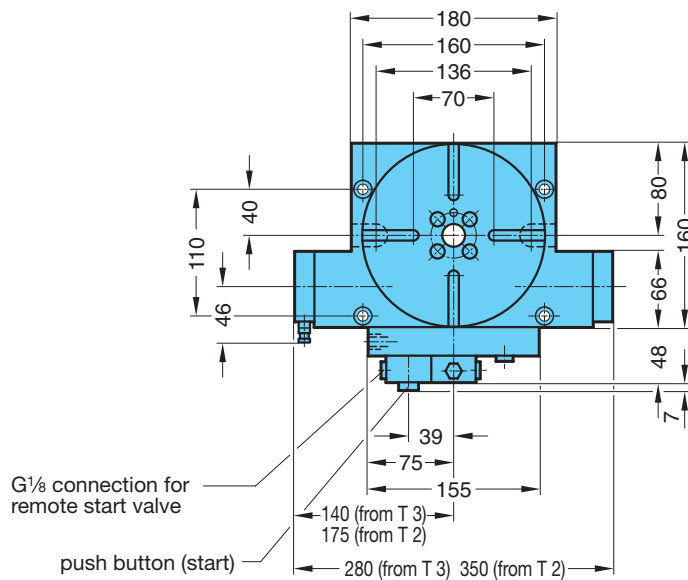
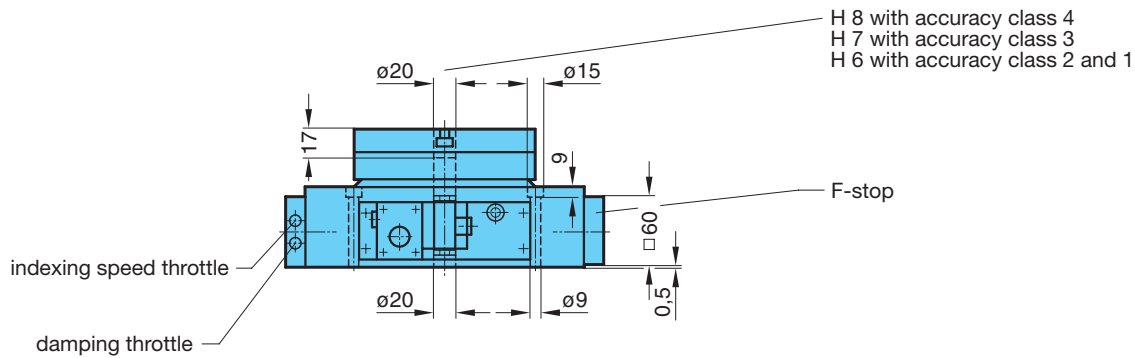


Table loads – carried on vertical table top:

load, carried within 160 mm dia.	kg	16	⑥
mass moment of inertia of table load	kgm ²	0,13	⑦
torque of table load	Nm	39	⑧
moment of eccentric load	Nm	-	⑨
table load with tailstock	kg	40	



11. Dimensions





11.11.2. Technical data

1. Type designation

FIBRO TAKT "indexing with lifting table top"

Block 1
11.11.2.

Type Standard, Pneumatic Indexing Table, with internal control

Size 2

working position any

2. Table top dimensions

Table top execution		table top dimension	
		200 mm	250 mm
○ round	without Tee-slots	11	15
⊕ round	with Tee-slots	13 radial	17 radial

Block 2
□

to customer's drawing 00

3. Table clamping

pneumatic 4

Block 3
4

4. Rack + pinion drive

max. index angle up to 180° (from T2) up to 120° (from T3)

rotation direction	available for	available for
standard: clockwise	11 F, U see point 5	01 F
anti-clockwise	14 F, U	04 F
pendulum or multiple pendulum rotation	<input type="checkbox"/> F	<input type="checkbox"/> F

Block 4
□

5. Change of index (see page 9)

fixed division "F" 11 variable division "U" 21 max. 11 divisions

Block 5
□

6. Accuracy (at pressure/diameter: 6 bar/200 mm)

Class	4	3	2	1
indexing accuracy seconds	±12	±6	±3	±1,5
radians at dia. Ø200	±0,006	±0,003	±0,0015	±0,0008
repeatability as percentage of indexing accuracy	30	25	20	20
runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005
max.wobble of table top	mm TIR 0,030	0,015	0,008	0,005
parallelism: table top face/ mounting face	mm TIR 0,035	0,025	0,012	0,008
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004

Block 6
□

7. Face gear, number of teeth/divisions

standard number of teeth 72 max. 120
divisions obtainable T 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
Required division "T..." to be completed when ordering

Block 7
□-T...

8. Operating data

pressure medium	air
working pressure	bar 6 (min. 5, max. 8)
air consumption per cycle	l 2,1 (T4)
table lift	mm approx. 4
shipping weight (table dia. 200 mm)	kg approx. 37 Ø250 kg approx. 42

9. Indexing time (at working pressure 6 bar)

index	T	2	3	4	6	8
mass moment of inertia (max.)	kgm ² 0,50					
indexing time (unclamp, rotate, clamp)	s 1,6	1,2	1,0	0,9	0,8	0,8
indexing frequency	per min ⁻¹ 25	32	38	43	50	
mass moment of inertia (2/3 max.)	kgm ² 0,33					
indexing time (unclamp, rotate, clamp)	s 1,5	1,1	0,9	0,8	0,7	
indexing frequency	per min ⁻¹ 26	33	40	46	55	

Example of ordering code number 11.11.2 . 4 . □ . □ . □ . □ . □ -T...

Right of alterations reserved

10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 200 mm	N	15 000	①
tangential moment	Nm	605	②
tilting moment	Nm	325	③

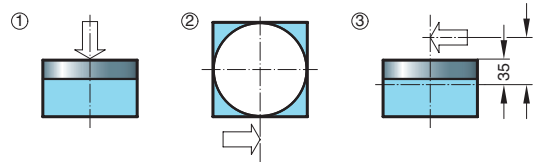


Table loads – carried on horizontal table top:

load, carried within 200 mm dia.	kg	70	④
mass moment of inertia of table load	kgm ²	0,5	⑤
moment of eccentric load	Nm	115	

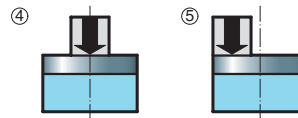
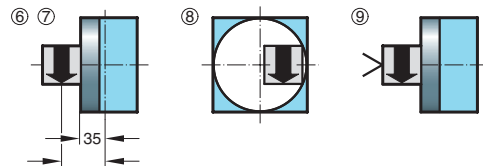
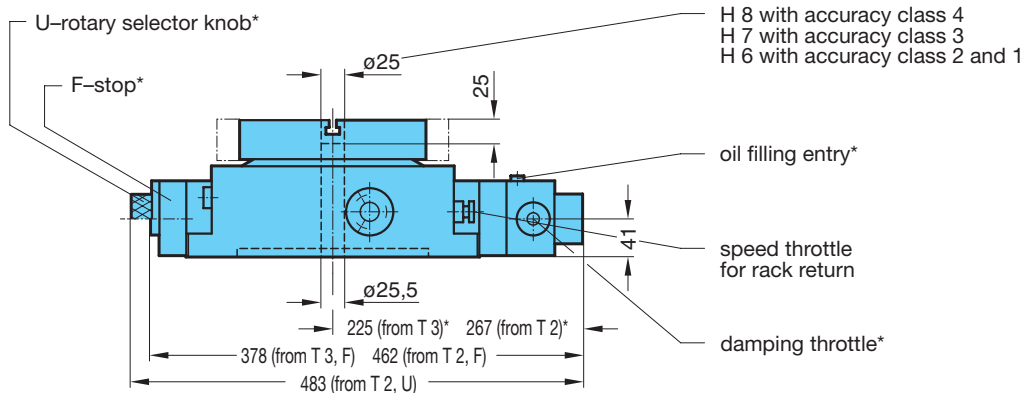


Table loads – carried on vertical table top:

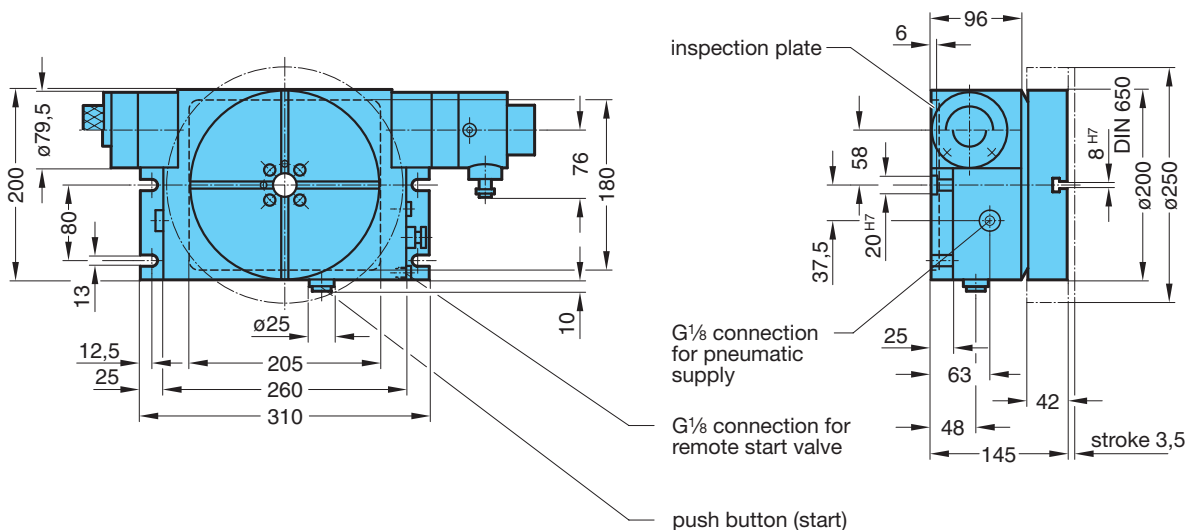
load, carried within 200 mm dia.	kg	28	⑥
mass moment of inertia of table load	kgm ²	0,5	
torque of table load	Nm	63	⑦
moment of eccentric load	Nm	–	⑧
table load with tailstock	kg	70	⑨



11. Dimensions



* for anti-clockwise rotation
inverse to the centre axis





11.11.3. Technical data

1. Type designation FIBRO TAKT "indexing with lifting table top" Type <u>Standard, Pneumatic Indexing Table, with internal control</u> Size <u>3</u> working position <u>any</u>		Block 11.11.3.																																																	
2. Table top dimensions <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Table top execution</td> <td colspan="2">Table top dimension</td> </tr> <tr> <td>○ round without Tee-slots</td> <td>320 mm</td> <td>400 mm</td> </tr> <tr> <td>⊕ round with Tee-slots</td> <td>11 radial</td> <td>15 radial</td> </tr> <tr> <td></td> <td>13 radial</td> <td>17 radial</td> </tr> <tr> <td colspan="3">to customer's drawing <u>00</u></td> </tr> </table>		Table top execution	Table top dimension		○ round without Tee-slots	320 mm	400 mm	⊕ round with Tee-slots	11 radial	15 radial		13 radial	17 radial	to customer's drawing <u>00</u>			Block 2 <input type="checkbox"/>																																		
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max. index angle	up to 180° (from T2)	up to 120° (from T3)																																																	
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pendulum or multiple pendulum rotation	<input type="checkbox"/> F	<input type="checkbox"/> F																																																	
5. Change of index (see page 9) <u>fixed division "F" 11 variable division "U" 21 max. 11 divisions</u>		Block 5 <input type="checkbox"/>																																																	
6. Accuracy (at pressure/diameter: 6 bar/320 mm) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Class</td> <td><u>4</u></td> <td><u>3</u></td> <td><u>2</u></td> <td><u>1</u></td> </tr> <tr> <td>indexing accuracy seconds</td> <td>±12</td> <td>±6</td> <td>±3</td> <td>±1,5</td> </tr> <tr> <td> radians at dia. 320</td> <td>±0,01</td> <td>±0,005</td> <td>±0,0024</td> <td>±0,0012</td> </tr> <tr> <td>repeatability as percentage of indexing accuracy</td> <td>30</td> <td>25</td> <td>20</td> <td>20</td> </tr> <tr> <td>runout of table top centre bore</td> <td>mm TIR 0,040</td> <td>0,018</td> <td>0,010</td> <td>0,005</td> </tr> <tr> <td>max. wobble of table top</td> <td>mm TIR 0,035</td> <td>0,020</td> <td>0,008</td> <td>0,005</td> </tr> <tr> <td>parallelism: table top face/ mounting face</td> <td>mm TIR 0,045</td> <td>0,025</td> <td>0,012</td> <td>0,008</td> </tr> <tr> <td>parallelism: base tenon/ table top tenon</td> <td>mm/ 100 mm TIR 0,020</td> <td>0,006</td> <td>0,004</td> <td>0,004</td> </tr> </table>		Class	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	indexing accuracy seconds	±12	±6	±3	±1,5	radians at dia. 320	±0,01	±0,005	±0,0024	±0,0012	repeatability as percentage of indexing accuracy	30	25	20	20	runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005	max. wobble of table top	mm TIR 0,035	0,020	0,008	0,005	parallelism: table top face/ mounting face	mm TIR 0,045	0,025	0,012	0,008	parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004	Block 6 <input type="checkbox"/>									
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7. Face gear, number of teeth/divisions standard number of teeth <u>96</u> max. 144 divisions obtainable T 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96 Required division "T..." to be completed when ordering		Block 7 <input type="checkbox"/> -T...																																																	
8. Operating data <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>pressure medium</td> <td>air</td> </tr> <tr> <td>working pressure</td> <td>bar 6 (min. 5, max. 8)</td> </tr> <tr> <td>air consumption per cycle</td> <td>l 4,0 (T4)</td> </tr> <tr> <td>table lift</td> <td>mm approx. 4</td> </tr> <tr> <td>shipping weight (table dia. 320 mm)</td> <td>kg approx. 85 Ø400 kg approx. 100</td> </tr> </table>		pressure medium	air	working pressure	bar 6 (min. 5, max. 8)	air consumption per cycle	l 4,0 (T4)	table lift	mm approx. 4	shipping weight (table dia. 320 mm)	kg approx. 85 Ø400 kg approx. 100																																								
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9. Indexing time (at working pressure 6 bar) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>index</td> <td>T</td> <td>2</td> <td>3</td> <td>4</td> <td>6</td> <td>8</td> </tr> <tr> <td>mass moment of inertia (max.)</td> <td>kgm²</td> <td colspan="5">4,5</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>2,1</td> <td>1,7</td> <td>1,5</td> <td>1,4</td> <td>1,3</td> </tr> <tr> <td>indexing frequency</td> <td>min⁻¹</td> <td>19</td> <td>24</td> <td>28</td> <td>31</td> <td>34</td> </tr> <tr> <td>mass moment of inertia (2/3 max.)</td> <td>kgm²</td> <td colspan="5">3,0</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>1,9</td> <td>1,5</td> <td>1,3</td> <td>1,2</td> <td>1,1</td> </tr> <tr> <td>indexing frequency</td> <td>min⁻¹</td> <td>21</td> <td>26</td> <td>30</td> <td>34</td> <td>38</td> </tr> </table>		index	T	2	3	4	6	8	mass moment of inertia (max.)	kgm ²	4,5					indexing time (unclamp, rotate, clamp)	s	2,1	1,7	1,5	1,4	1,3	indexing frequency	min ⁻¹	19	24	28	31	34	mass moment of inertia (2/3 max.)	kgm ²	3,0					indexing time (unclamp, rotate, clamp)	s	1,9	1,5	1,3	1,2	1,1	indexing frequency	min ⁻¹	21	26	30	34	38	
index	T	2	3	4	6	8																																													
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Example of ordering code number **11.11.3** -T...

Right of alterations reserved



11.12.2. Technical data

1. Type designation

FIBRO TAKT "indexing with lifting table top"

Block 1
11.12.2.

Type Standard, Pneumatic Indexing Table, with external control

Size 2

working position vertical

2. Table top dimensions

Table top execution		Table top dimension	
		200 mm	250 mm
○ round	without Tee-slots	11	15
⊕ round	with Tee-slots	13 radial	17 radial
to customer's drawing		00	

Block 2
□

3. Table clamping

pneumatic 4

Block 3
4

4. Rack + pinion drive

max. index angle	up to 180° (from T2)	up to 120° (from T3)
rotation direction	available for	available for
standard: clockwise	11 F, U see point 5	01 F
anti-clockwise	14 F, U	04 F
clockwise and anti-clockwise, multiple pendulum only	37 F	27 F
	57 F	47 F

Block 4
□

5. Change of index (see page 9)

fixed division "F" 11 variable division "U" 21 max. 11 divisions

Block 5
□

6. Accuracy (at pressure/diameter: 6 bar/200 mm)

Class		4	3	2	1
indexing accuracy seconds	∠s	±12	±6	±3	±1,5
radians at dia. 200	mm	±0,006	±0,003	±0,0015	±0,0008
repeatability as percentage of indexing accuracy	%	30	25	20	20
runout of table top centre bore	mm TIR	0,040	0,018	0,010	0,005
max. wobble of table top	mm TIR	0,030	0,015	0,008	0,005
parallelism: table top face/ mounting face	mm TIR	0,035	0,025	0,012	0,008
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR	0,020	0,006	0,004	0,004

Block 6
□

7. Face gear, number of teeth/divisions

standard number of teeth 72 max. 120
divisions obtainable T 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
Required division "T..." to be completed when ordering

Block 7
□-T...

8. Operating data

pressure medium	air
working pressure	bar 6 (min. 5, max. 8)
air consumption per cycle	l 2,1 (T4)
table lift	mm approx. 4
shipping weight (table dia. 200 mm)	kg approx. 40 ∅250 kg approx. 45

9. Indexing time (at working pressure 6 bar)

index	T	2	3	4	6	8
mass moment of inertia (max.)	kgm ²			0,5		
indexing time (unclamp, rotate, clamp)	s	1,6	1,2	1,0	0,9	0,8
indexing frequency	min ⁻¹	25	32	38	43	50
mass moment of inertia (2/3 max.)	kgm ²			0,33		
indexing time (unclamp, rotate, clamp)	s	1,5	1,1	0,9	0,8	0,7
indexing frequency	min ⁻¹	26	33	40	46	55

Example of ordering code number 11.12.2 . 4 . □ . □ . □ . □ . □ . □ -T...

Right of alterations reserved



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 200 mm	N	15000	①
tangential moment	Nm	605	②
tilting moment	Nm	325	③

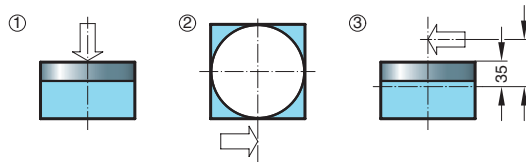


Table loads – carried on horizontal table top:

load, carried within 200 mm dia.	kg	70	④
mass moment of inertia of table load	kgm ²	0,5	⑤
moment of eccentric load	Nm	115	⑤

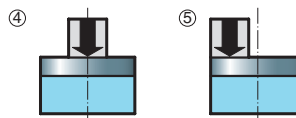
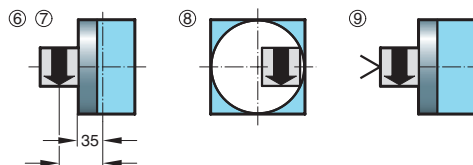


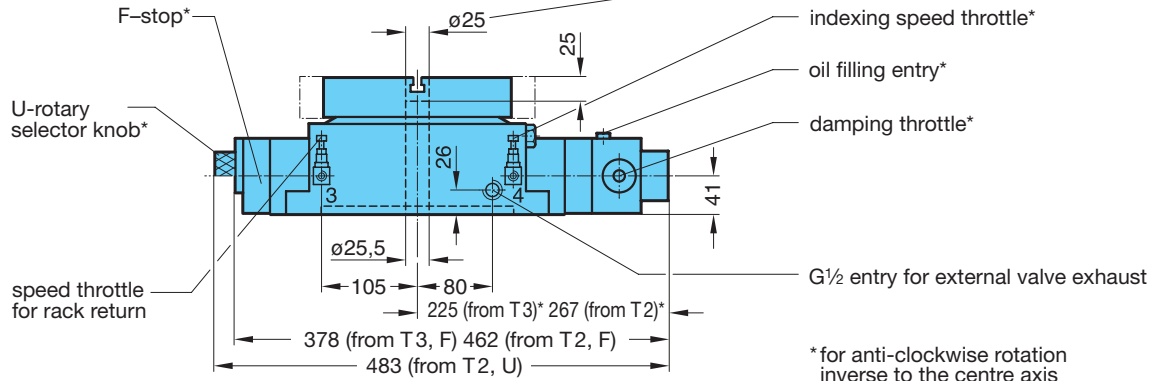
Table loads – carried on vertical table top:

load, carried within 200 mm dia.	kg	28	⑥
mass moment of inertia of table load	kgm ²	0,5	⑥
torque of table load	Nm	63	⑦
moment of eccentric load	Nm	-	⑧
table load with tailstock	kg	70	⑨

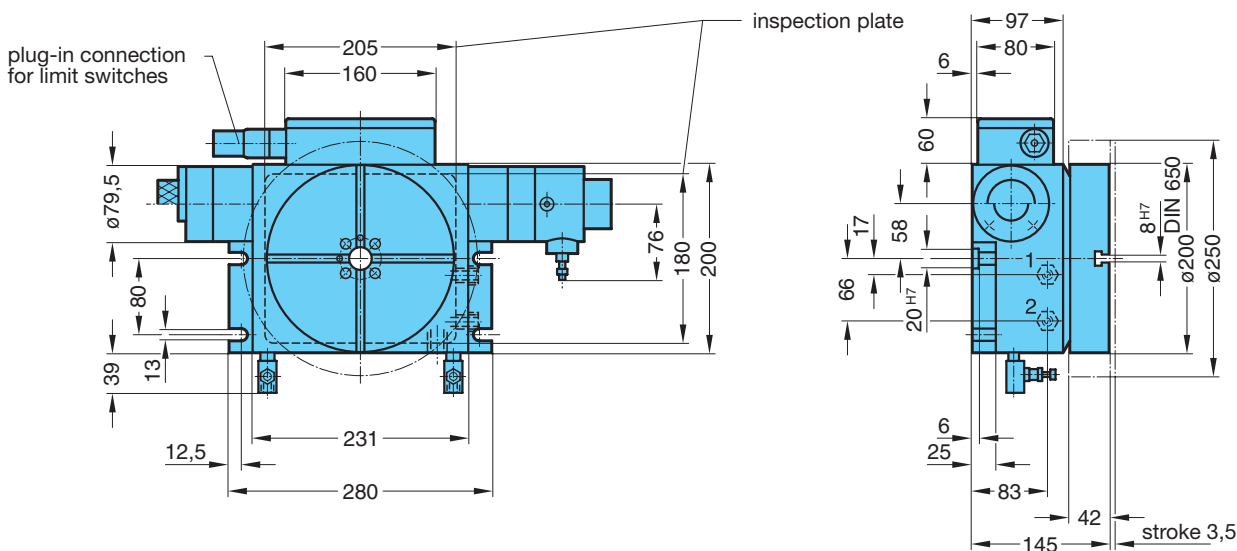


11. Dimensions

H 8 with accuracy class 4
 H 7 with accuracy class 3
 H 6 with accuracy class 2 and 1
 G^{1/8} No 1–4
 pneumatic entries



* for anti-clockwise rotation
 inverse to the centre axis



1-52744-1 0



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 320 mm	N	20 000	①
tangential moment	Nm	2 300	②
tilting moment	Nm	1 280	③

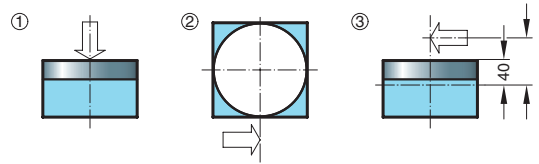


Table loads – carried on horizontal table top:

load, carried within 320 mm dia.	kg	350	④
mass moment of inertia of table load	kgm ²	4,5	⑤
moment of eccentric load	Nm	400	

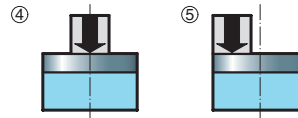
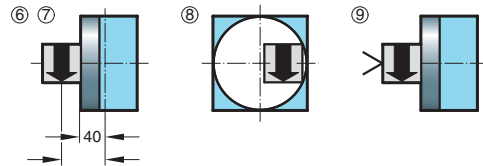
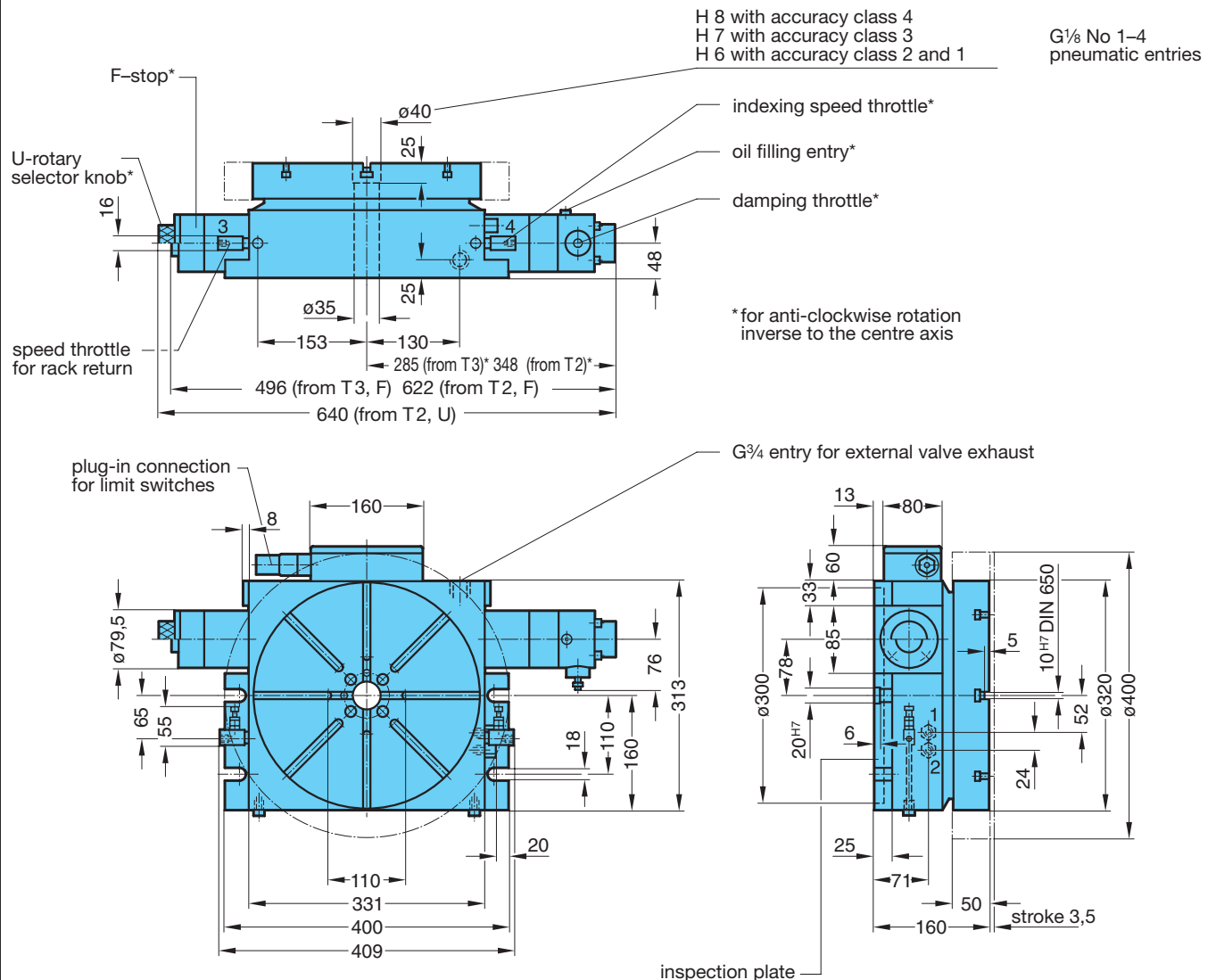


Table loads – carried on vertical table top:

load, carried within 320 mm dia.	kg	140	⑥
mass moment of inertia of table load	kgm ²	4,5	⑦
torque of table load	Nm	225	⑧
moment of eccentric load	Nm	-	⑨
table load with tailstock	kg	350	



11. Dimensions



1-5276-4-1 0



11.12.4. Technical data

1. Type designation FIBROTAKT "indexing with lifting table top" Type <u>Standard, Pneumatic Indexing Table, with external control</u> Size <u>4</u> working position <u>any</u>		Block 1 11.12.4.																																																	
2. Table top dimensions <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Table top execution</td> <td colspan="2">Table top dimension</td> </tr> <tr> <td>○ round without Tee-slots</td> <td>400 mm</td> <td>500 mm</td> </tr> <tr> <td>⊕ round with Tee-slots</td> <td>11 radial</td> <td>15 radial</td> </tr> <tr> <td></td> <td>13 radial</td> <td>17 radial</td> </tr> <tr> <td colspan="3">to customer's drawing <u>00</u></td> </tr> </table>		Table top execution	Table top dimension		○ round without Tee-slots	400 mm	500 mm	⊕ round with Tee-slots	11 radial	15 radial		13 radial	17 radial	to customer's drawing <u>00</u>			Block 2 <input type="checkbox"/>																																		
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5. Change of index (see page 9) <u>fixed division "F" 11</u> <u>variable division "U" 21</u> <u>max. 11 divisions</u>		Block 5 <input type="checkbox"/>																																																	
6. Accuracy (at pressure/diameter: 6 bar/400 mm) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Class</td> <td><u>4</u></td> <td><u>3</u></td> <td><u>2</u></td> <td><u>1</u></td> </tr> <tr> <td>indexing accuracy seconds</td> <td>±12</td> <td>±6</td> <td>±3</td> <td>±1,5</td> </tr> <tr> <td> radians at dia. 400</td> <td>±0,012</td> <td>±0,006</td> <td>±0,003</td> <td>±0,0015</td> </tr> <tr> <td>repeatability as percentage of indexing accuracy</td> <td>30</td> <td>25</td> <td>20</td> <td>20</td> </tr> <tr> <td>runout of table top centre bore</td> <td>mm TIR 0,040</td> <td>0,018</td> <td>0,010</td> <td>0,005</td> </tr> <tr> <td>max. wobble of table top</td> <td>mm TIR 0,040</td> <td>0,020</td> <td>0,008</td> <td>0,005</td> </tr> <tr> <td>parallelism: table top face/ mounting face</td> <td>mm TIR 0,050</td> <td>0,025</td> <td>0,012</td> <td>0,008</td> </tr> <tr> <td>parallelism: base tenon/ table top tenon</td> <td>mm/ 100 mm TIR 0,020</td> <td>0,006</td> <td>0,004</td> <td>0,004</td> </tr> </table>		Class	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	indexing accuracy seconds	±12	±6	±3	±1,5	radians at dia. 400	±0,012	±0,006	±0,003	±0,0015	repeatability as percentage of indexing accuracy	30	25	20	20	runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005	max. wobble of table top	mm TIR 0,040	0,020	0,008	0,005	parallelism: table top face/ mounting face	mm TIR 0,050	0,025	0,012	0,008	parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004	Block 6 <input type="checkbox"/>									
Class	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>																																															
indexing accuracy seconds	±12	±6	±3	±1,5																																															
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7. Face gear, number of teeth/divisions standard number of teeth <u>96</u> max. 360 divisions obtainable T 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96 Required division "T..." to be completed when ordering		Block 7 <input type="checkbox"/> -T...																																																	
8. Operating data <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>pressure medium</td> <td>air</td> </tr> <tr> <td>working pressure</td> <td>bar 6 (min. 5, max. 8)</td> </tr> <tr> <td>air consumption per cycle</td> <td>l 6,5 (T4)</td> </tr> <tr> <td>table lift</td> <td>mm approx. 4</td> </tr> <tr> <td>shipping weight (table dia. 400 mm)</td> <td>kg approx. 180 ∅500 kg approx. 225</td> </tr> </table>		pressure medium	air	working pressure	bar 6 (min. 5, max. 8)	air consumption per cycle	l 6,5 (T4)	table lift	mm approx. 4	shipping weight (table dia. 400 mm)	kg approx. 180 ∅500 kg approx. 225																																								
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9. Indexing time (at working pressure 6 bar) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>index</td> <td>T</td> <td>2</td> <td>3</td> <td>4</td> <td>6</td> <td>8</td> </tr> <tr> <td>mass moment of inertia (max.)</td> <td>kgm²</td> <td colspan="5">10</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>2,6</td> <td>2,3</td> <td>2,1</td> <td>2,0</td> <td>1,9</td> </tr> <tr> <td>indexing frequency</td> <td>min⁻¹</td> <td>15</td> <td>17</td> <td>19</td> <td>21</td> <td>24</td> </tr> <tr> <td>mass moment of inertia (2/3 max.)</td> <td>kgm²</td> <td colspan="5">6,7</td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>2,4</td> <td>2,1</td> <td>1,9</td> <td>1,8</td> <td>1,7</td> </tr> <tr> <td>indexing frequency</td> <td>min⁻¹</td> <td>16</td> <td>18</td> <td>20</td> <td>23</td> <td>26</td> </tr> </table>		index	T	2	3	4	6	8	mass moment of inertia (max.)	kgm ²	10					indexing time (unclamp, rotate, clamp)	s	2,6	2,3	2,1	2,0	1,9	indexing frequency	min ⁻¹	15	17	19	21	24	mass moment of inertia (2/3 max.)	kgm ²	6,7					indexing time (unclamp, rotate, clamp)	s	2,4	2,1	1,9	1,8	1,7	indexing frequency	min ⁻¹	16	18	20	23	26	
index	T	2	3	4	6	8																																													
mass moment of inertia (max.)	kgm ²	10																																																	
indexing time (unclamp, rotate, clamp)	s	2,6	2,3	2,1	2,0	1,9																																													
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mass moment of inertia (2/3 max.)	kgm ²	6,7																																																	
indexing time (unclamp, rotate, clamp)	s	2,4	2,1	1,9	1,8	1,7																																													
indexing frequency	min ⁻¹	16	18	20	23	26																																													

Example of ordering code number **11.12.4** -T...

Right of alterations reserved



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 400 mm	N	30 000	①
tangential moment	Nm	5 000	②
tilting moment	Nm	2 700	③

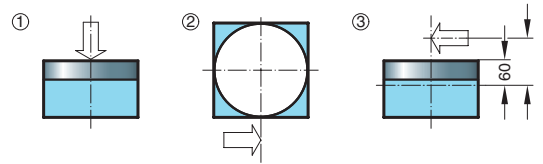


Table loads – carried on horizontal table top:

load, carried within 400 mm dia.	kg	500	④
mass moment of inertia of table load	kgm ²	10	⑤
moment of eccentric load	Nm	700	⑤

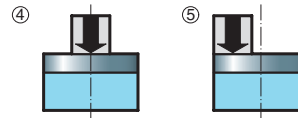
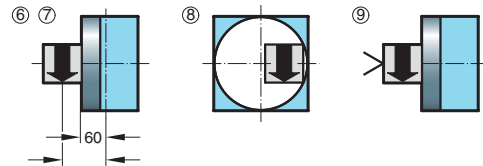
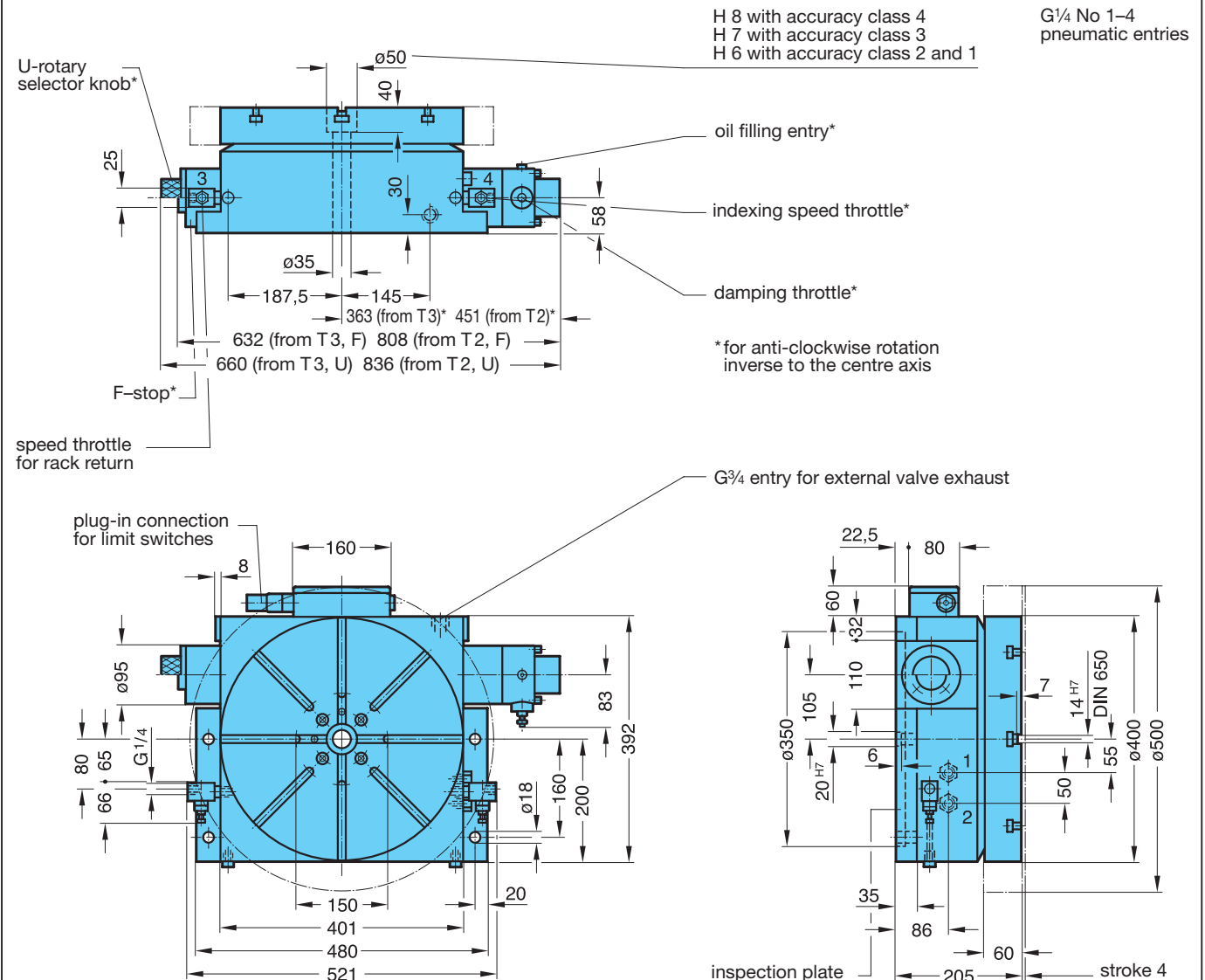


Table loads – carried on vertical table top:

load, carried within 400 mm dia.	kg	200	⑥
mass moment of inertia of table load	kgm ²	10	⑦
torque of table load	Nm	540	⑦
moment of eccentric load	Nm	79	⑧
table load with tailstock	kg	500	⑨



11. Dimensions



1-5278-4-1 0



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 500 mm	N	35 000	①
tangential moment	Nm	3 700	②
tilting moment	Nm	2 000	③

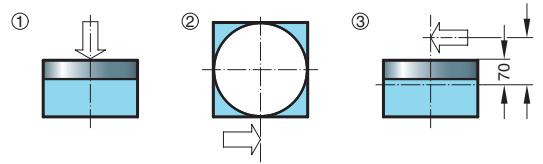


Table loads – carried on horizontal table top:

load, carried within 500 mm dia.	kg	630	④
mass moment of inertia of table load	kgm ²	25	⑤
moment of eccentric load	Nm	800	⑤

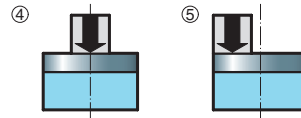
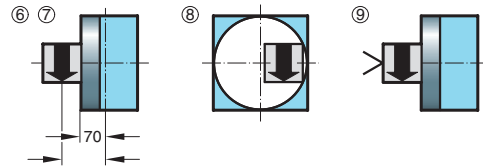
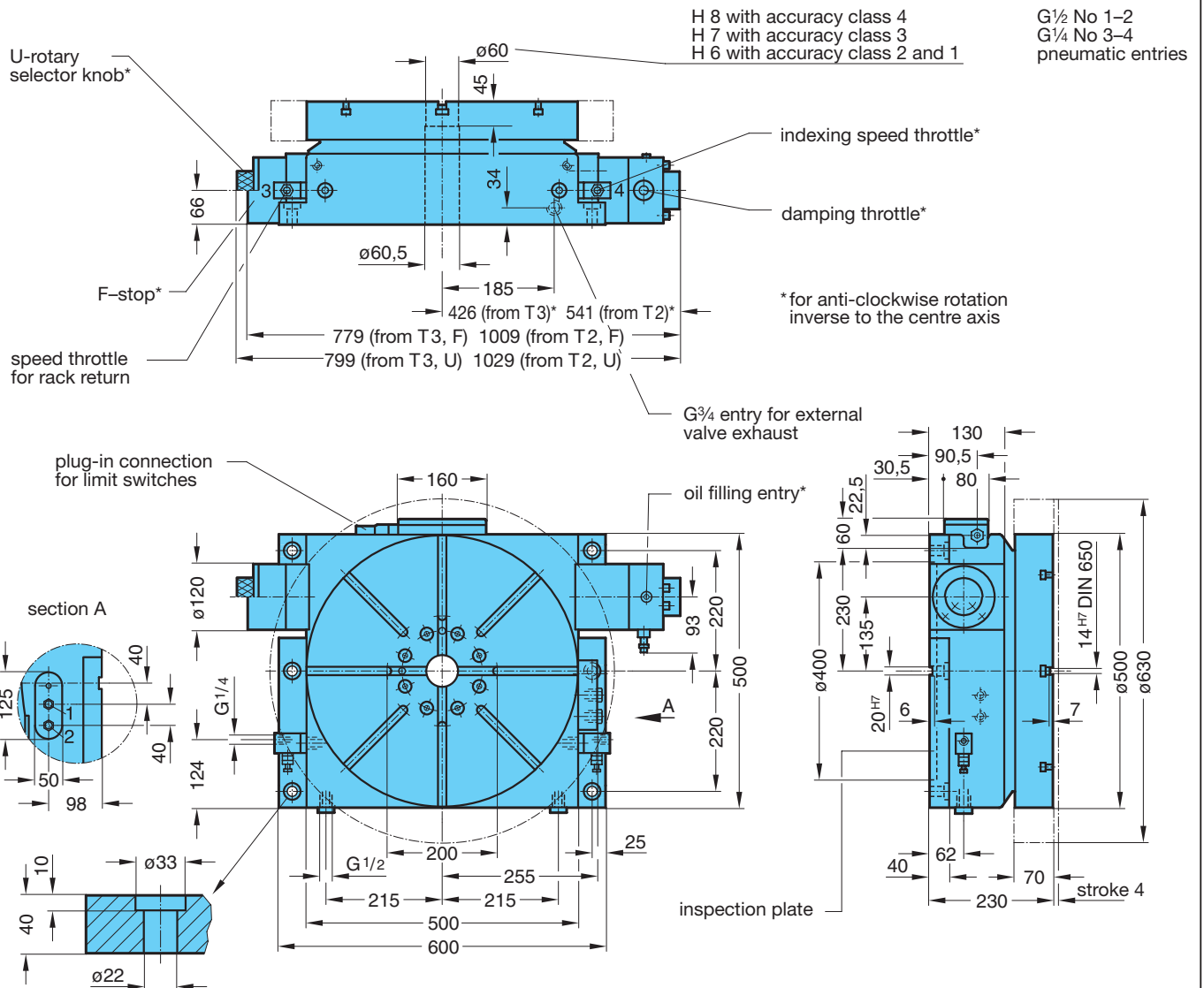


Table loads – carried on vertical table top:

load, carried within 500 mm dia.	kg	250	⑥
mass moment of inertia of table load	kgm ²	25	⑥
torque of table load	Nm	440	⑦
moment of eccentric load	Nm	150	⑧
table load with tailstock	kg	630	⑨



11. Dimensions



1-52860-2001-2



10. Loading data (at working pressure 6 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 630 mm	N	40 000	①
tangential moment	Nm	7 000	②
tilting moment	Nm	4 000	③

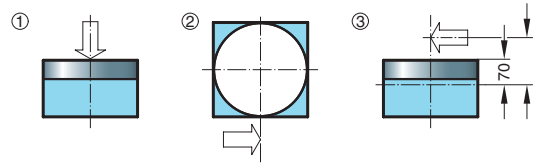


Table loads – carried on horizontal table top:

load, carried within 630 mm dia.	kg	800	④
mass moment of inertia of table load	kgm ²	40	⑤
moment of eccentric load	Nm	1 000	

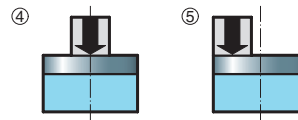
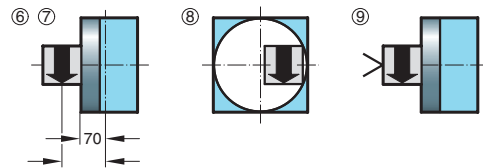
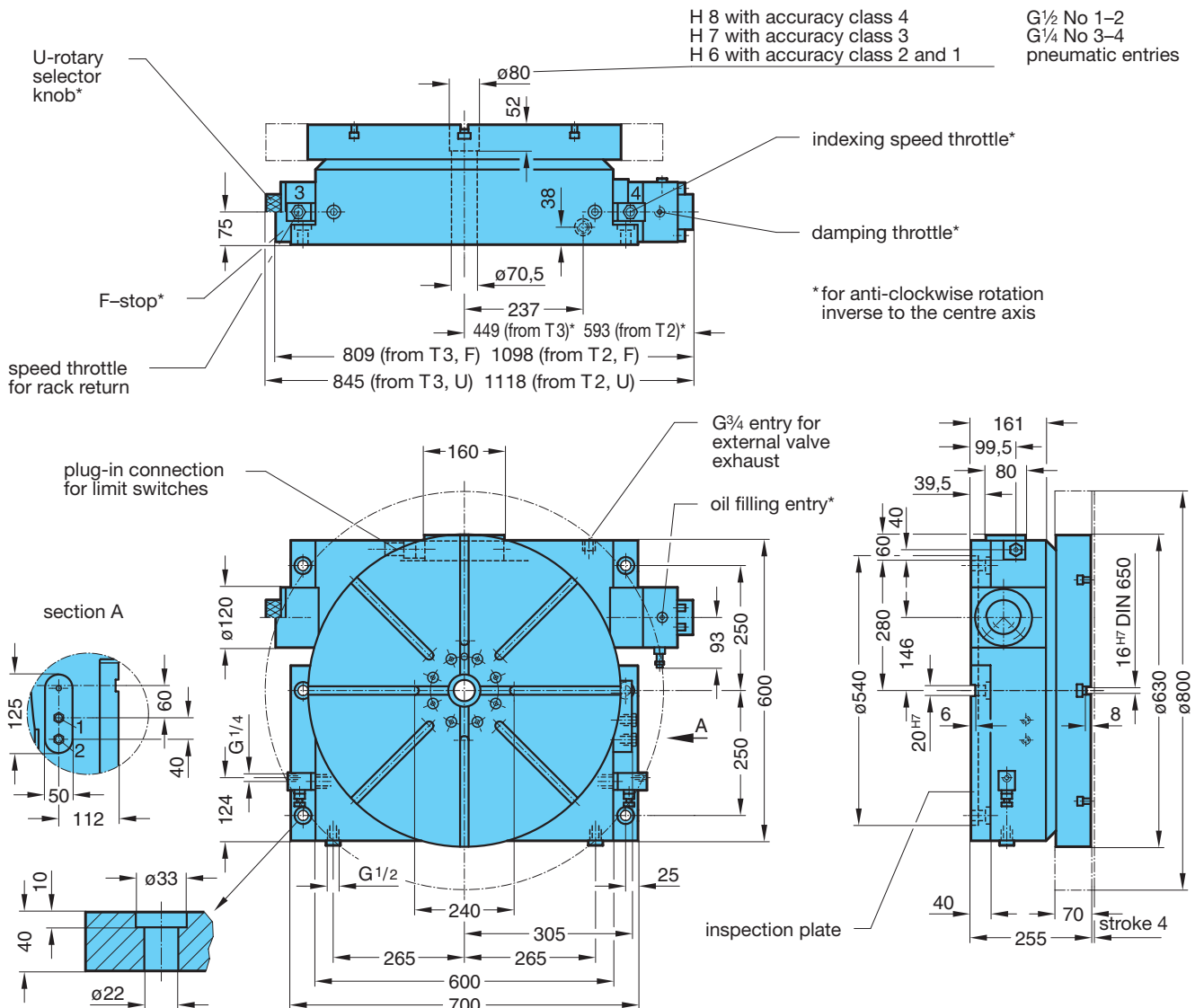


Table loads – carried on vertical table top:

load, carried within 630 mm dia.	kg	300	⑥
mass moment of inertia of table load	kgm ²	40	
torque of table load	Nm	530	⑦
moment of eccentric load	Nm	160	⑧
table load with tailstock	kg	800	⑨



11. Dimensions



1-4923-2001-2 0



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 200 mm	N	15000	①
tangential moment	Nm	1600	②
tilting moment	Nm	940	③

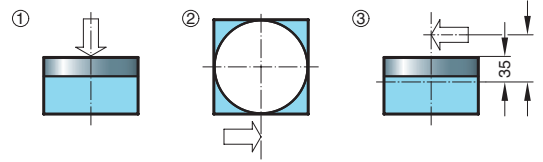


Table loads – carried on horizontal table top:

load, carried within 200 mm dia.	kg	100	④
mass moment of inertia of table load	kgm ²	0,75	⑤
moment of eccentric load	Nm	170	⑤

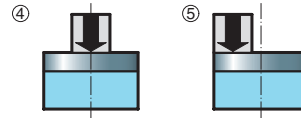
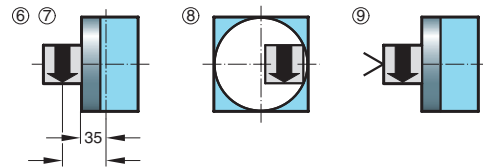
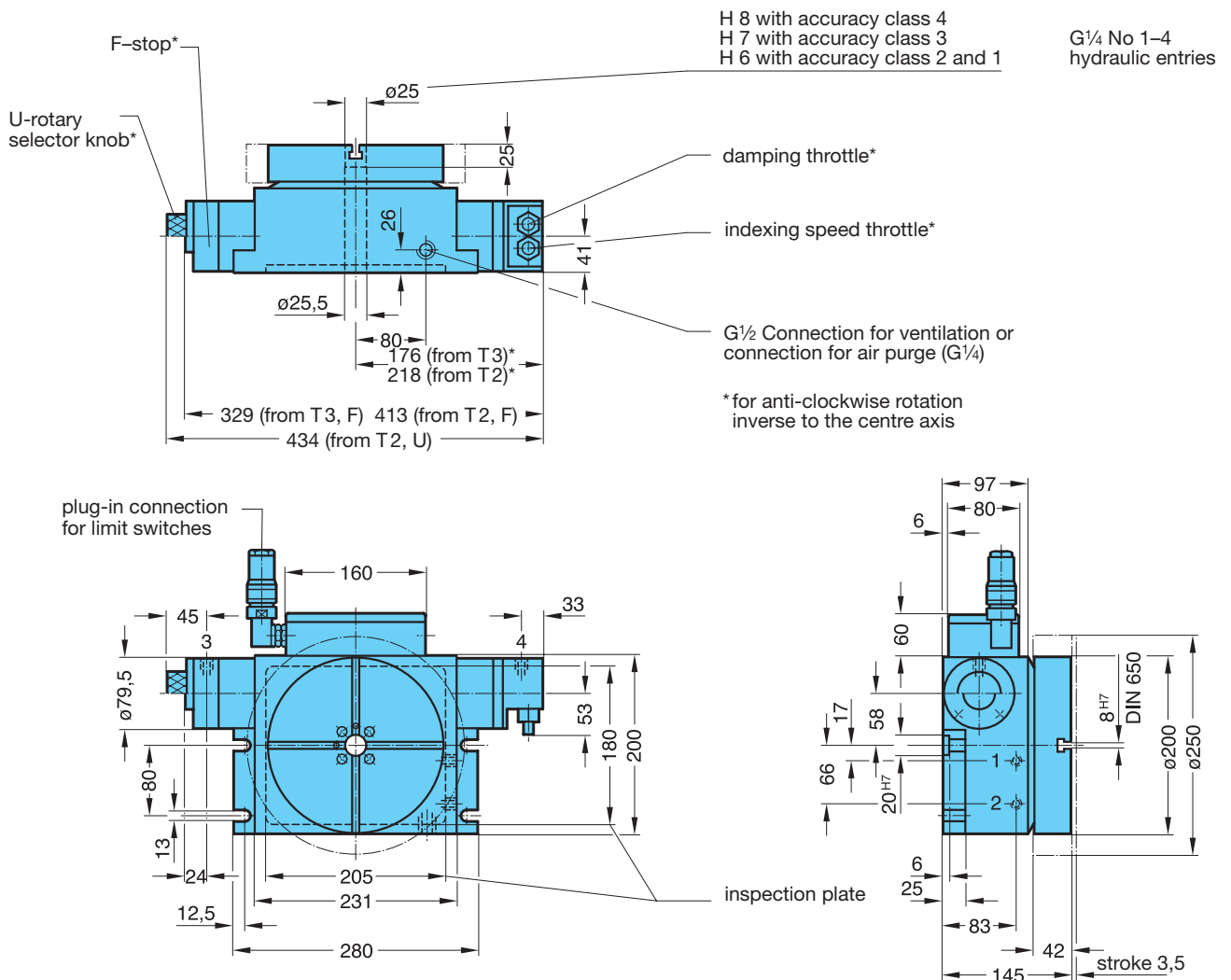


Table loads – carried on vertical table top:

load, carried within 200 mm dia.	kg	40	⑥
mass moment of inertia of table load	kgm ²	0,75	⑥
torque of table load	Nm	94	⑦
moment of eccentric load	Nm	-	⑧
table load with tailstock	kg	100	⑨



11. Dimensions



1-52847-3 0



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 320 mm	N	20000	①
tangential moment	Nm	5 000	②
tilting moment	Nm	3 000	③

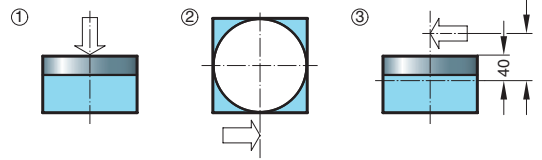


Table loads – carried on horizontal table top:

load, carried within 320 mm dia.	kg	500	④
mass moment of inertia of table load	kgm ²	6,6	⑤
moment of eccentric load	Nm	600	⑤

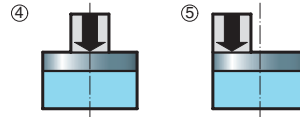
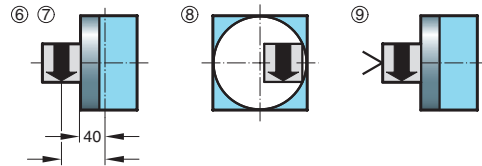
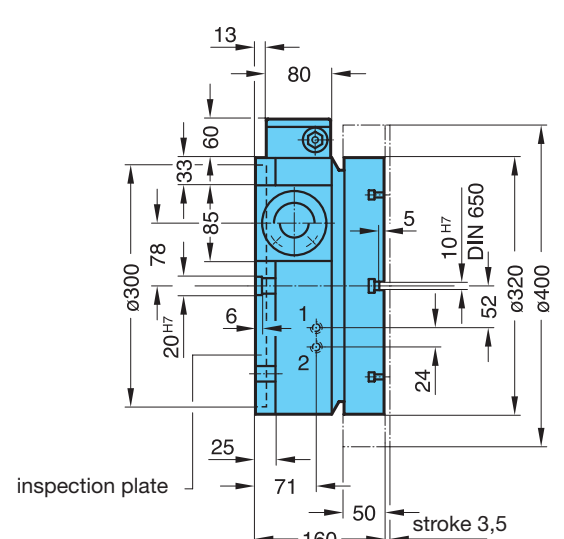
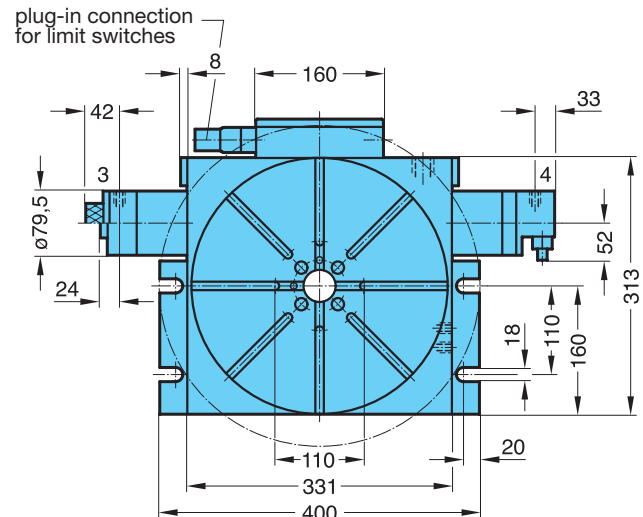
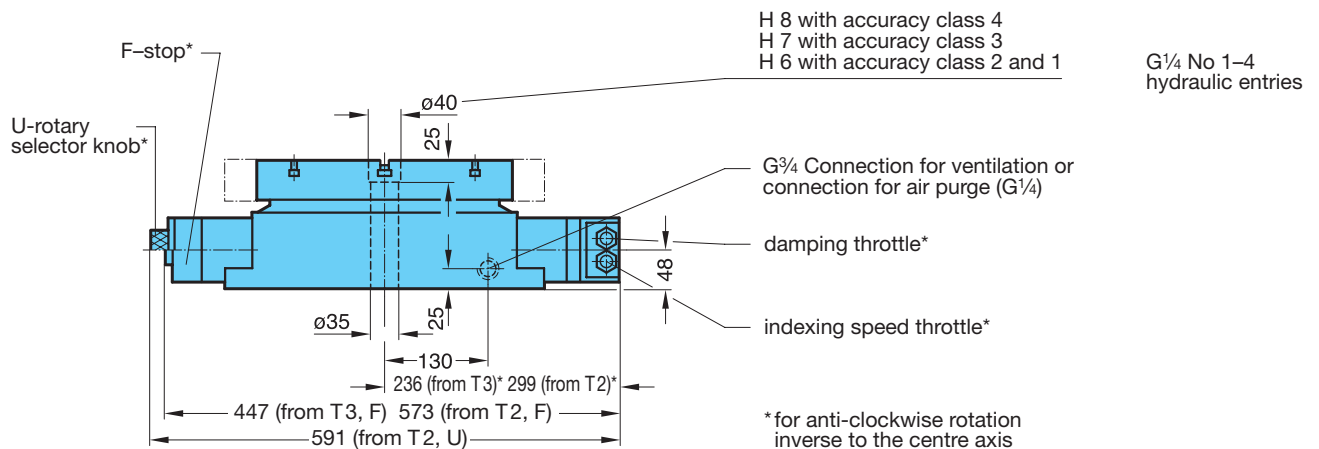


Table loads – carried on vertical table top:

load, carried within 320 mm dia.	kg	200	⑥
mass moment of inertia of table load	kgm ²	6,6	⑥
torque of table load	Nm	335	⑦
moment of eccentric load	Nm	-	⑧
table load with tailstock	kg	500	⑨



11. Dimensions



1-52867-3

lifting table top (hydr.)



11.13.4. Technical data

1. Type designation FIBRO TAKT "indexing with lifting table top"		Block 1 11.13.4.				
Type <u>Standard, Hydraulic Indexing Table, with external control</u>						
Size <u>4</u> working position <u>any</u>						
2. Table top dimensions						
Table top execution	Table top dimension					
○ round without Tee-slots	400 mm	500 mm				
⊕ round with Tee-slots	11 radial	15 radial				
	13 radial	17 radial				
to customer's drawing		00				
Block 2						
3. Table clamping						
hydraulic	5	Block 3				
4. Rack + pinion drive						
max. index angle	up to 180° (from T2)	up to 120° (from T3)				
rotation direction	available for	available for				
standard: clockwise	11 F, U see point 5	01 F, U				
anti-clockwise	14 F, U	04 F, U				
clockwise and anti-clockwise, multiple pendulum only	37 F	27 F				
	57 F	47 F				
Block 4						
5. Change of index (see page 9)						
fixed division "F"	11	variable division "U" 21				
		max. 11 divisions				
Block 5						
6. Accuracy (at pressure/diameter: 30 bar/400 mm)						
Class	4	3	2	1		
indexing accuracy seconds	±12	±6	±3	±1,5		
radians at dia. 400	mm ±0,012	±0,006	±0,003	±0,0015		
repeatability as percentage of indexing accuracy	% 30	25	20	20		
runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005		
max. wobble of table top	mm TIR 0,040	0,020	0,008	0,005		
parallelism: table top face/ mounting face	mm TIR 0,050	0,025	0,012	0,008		
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004		
Block 6						
7. Face gear, number of teeth/divisions						
standard number of teeth	96	max. 360				
divisions obtainable T 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96						
Required division "T..." to be completed when ordering						
Block 7						
8. Operating data						
pressure medium	hydraulic oil					
working pressure	bar 30					
oil consumption per cycle	l 0,64	(T4)				
table lift	mm approx. 4					
shipping weight (table dia. 400 mm)	kg approx. 180	Ø500	kg approx. 225			
9. Indexing time (at working pressure 30 bar)						
index	T	2	3	4	6	8
mass moment of inertia (max.)	kgm ²	15				
indexing time (unclamp, rotate, clamp)	s	2,6	2,3	2,1	2,0	1,9
indexing frequency	min ⁻¹	15	17	19	21	24
mass moment of inertia (2/3 max.)	kgm ²	10				
indexing time (unclamp, rotate, clamp)	s	2,4	2,1	1,9	1,8	1,7
indexing frequency	min ⁻¹	16	18	20	23	26

Example of ordering code number **11.13.4** -T...

Right of alterations reserved



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 400 mm	N	30000	①
tangential moment	Nm	12 000	②
tilting moment	Nm	7 000	③

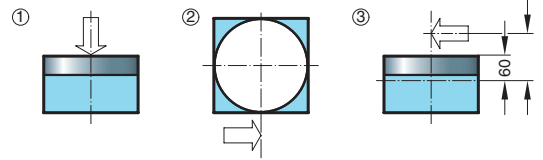


Table loads – carried on horizontal table top:

load, carried within 400 mm dia.	kg	750	④
mass moment of inertia of table load	kgm ²	15	⑤
moment of eccentric load	Nm	1 000	

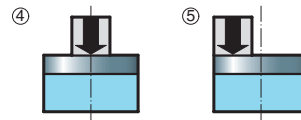
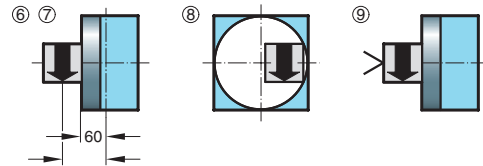
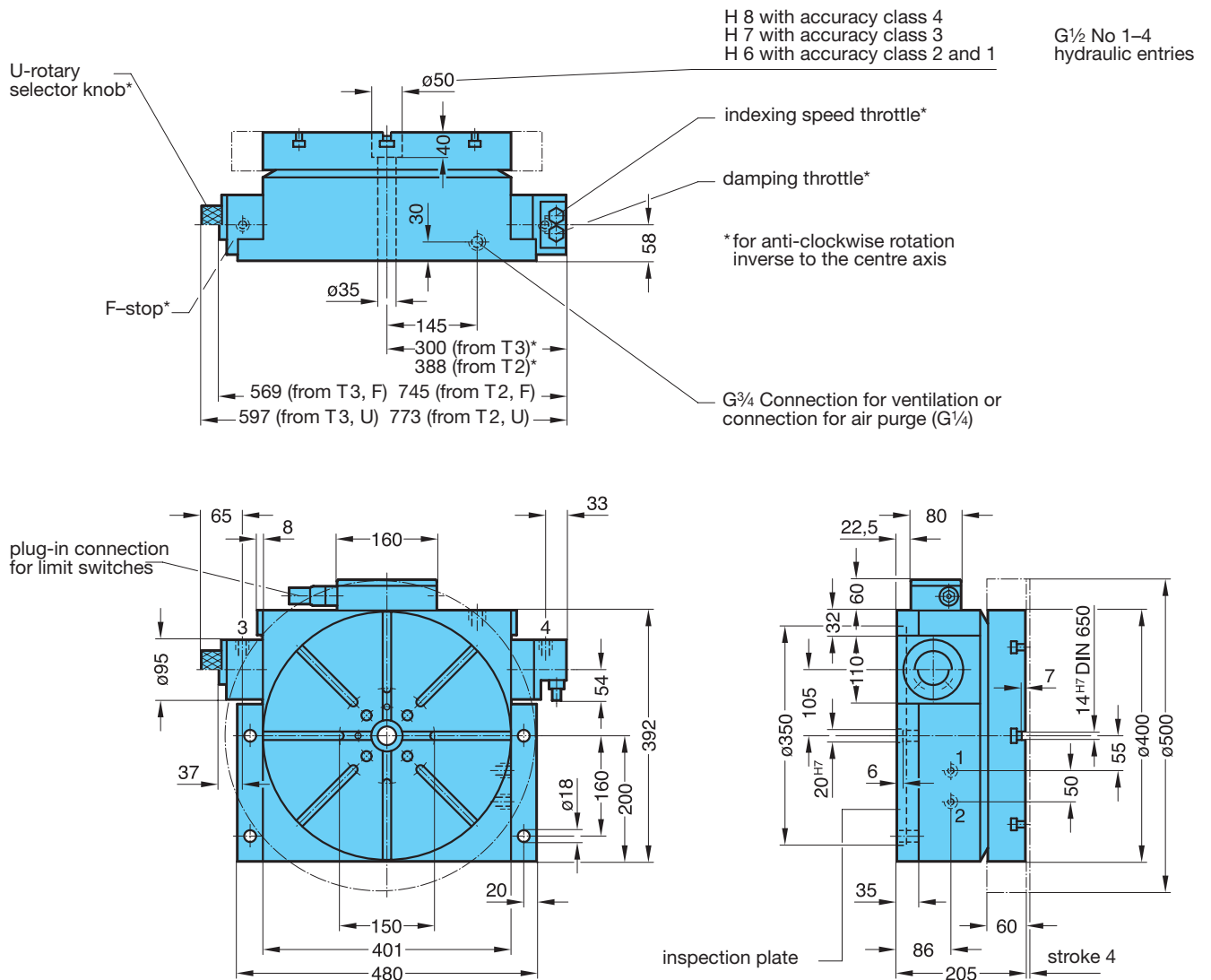


Table loads – carried on vertical table top:

load, carried within 400 mm dia.	kg	300	⑥
mass moment of inertia of table load	kgm ²	15	
torque of table load	Nm	800	⑦
moment of eccentric load	Nm	390	⑧
table load with tailstock	kg	750	⑨



11. Dimensions



1-528B7-2 0



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 500 mm	N	35 000	①
tangential moment	Nm	17 500	②
tilting moment	Nm	10 400	③

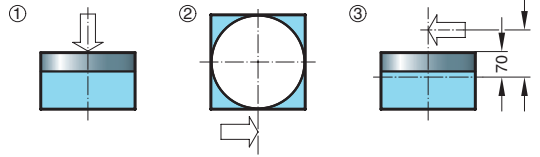


Table loads – carried on horizontal table top:

load, carried within 500 mm dia.	kg	1 000	④
mass moment of inertia of table load	kgm ²	45	⑤
moment of eccentric load	Nm	1 200	⑤

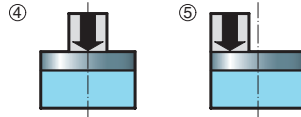
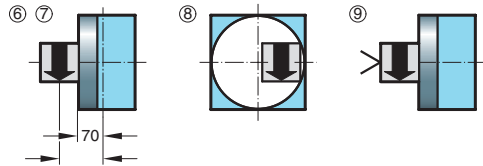
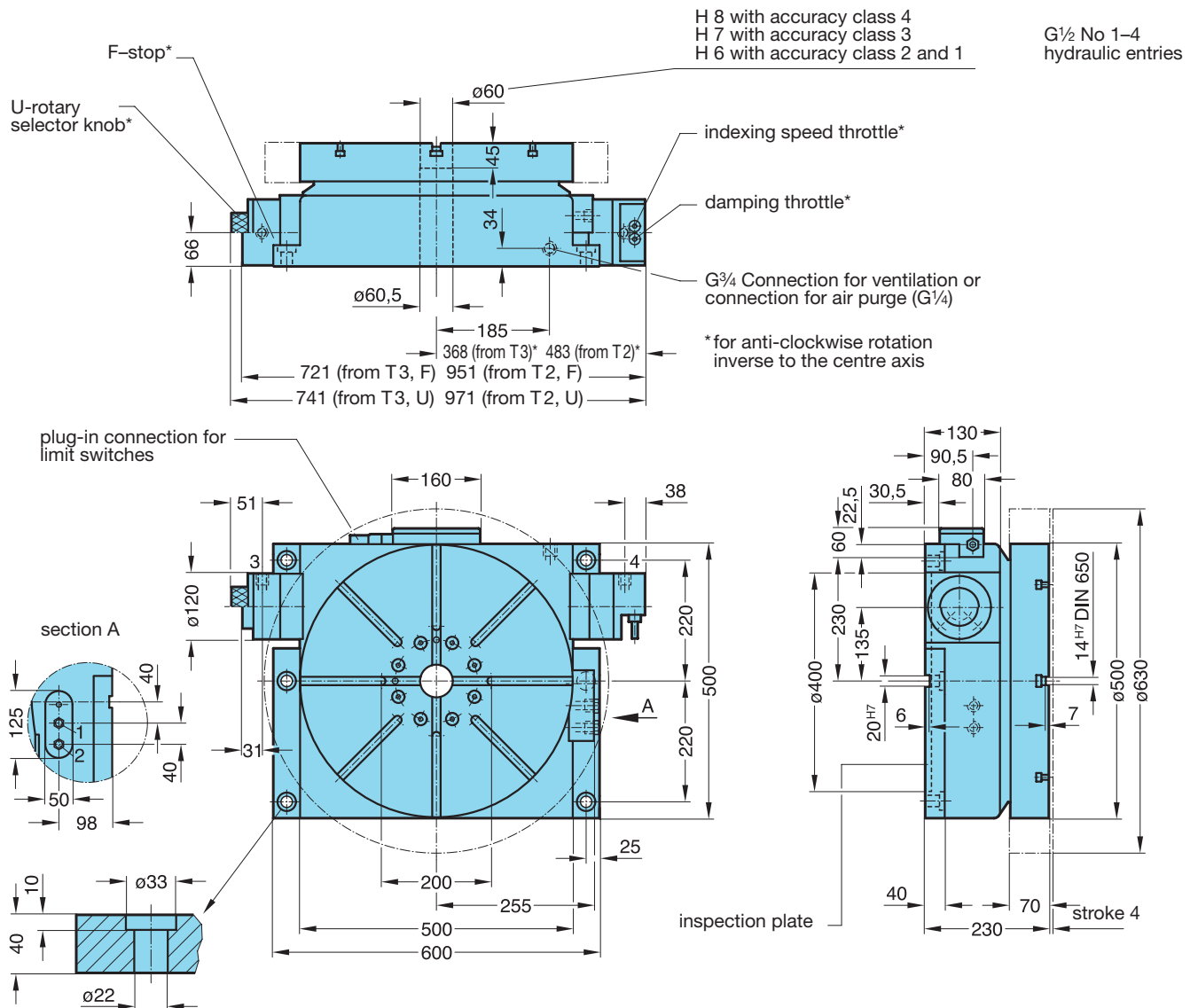


Table loads – carried on vertical table top:

load, carried within 500 mm dia.	kg	400	⑥
mass moment of inertia of table load	kgm ²	45	⑥
torque of table load	Nm	660	⑦
moment of eccentric load	Nm	740	⑧
table load with tailstock	kg	1 000	⑨



11. Dimensions



1-52940-2001-2 0

lifting table top (hydr.)



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 800 mm	N	60 000	①
tangential moment	Nm	56 000	②
tilting moment	Nm	33 000	③

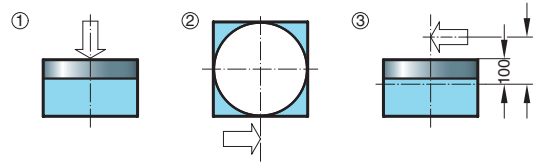


Table loads – carried on horizontal table top:

load, carried within 800 mm dia.	kg	2 400	④
mass moment of inertia of table load	kgm ²	350	⑤
moment of eccentric load	Nm	2 500	⑤

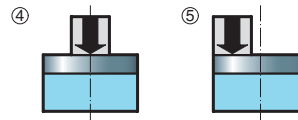
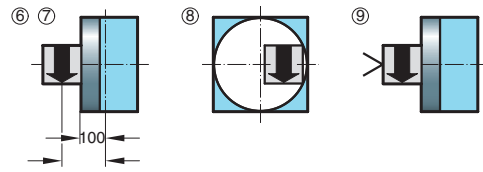


Table loads – carried on vertical table top:

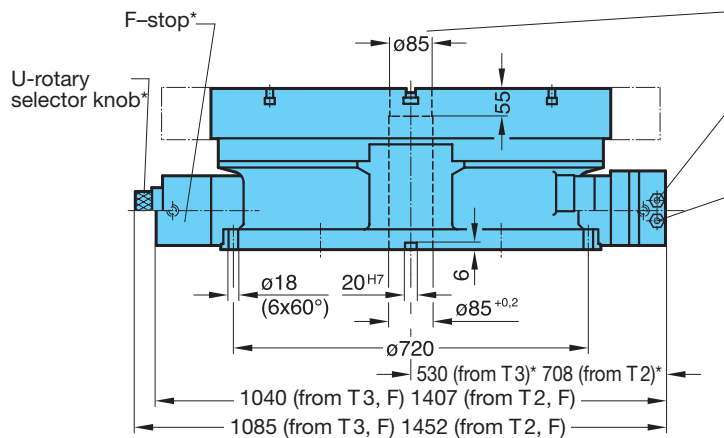
load, carried within 800 mm dia.	kg	1 000	⑥
mass moment of inertia of table load	kgm ²	350	⑥
torque of table load	Nm	2 750	⑦
moment of eccentric load	Nm	1 800	⑧
table load with tailstock	kg	2 400	⑨



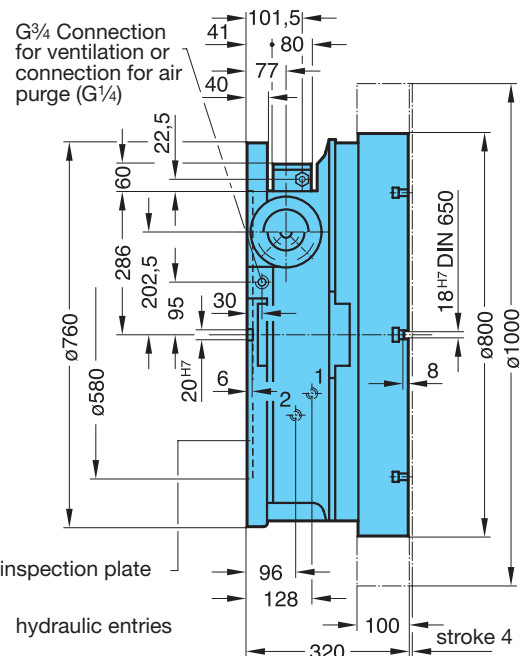
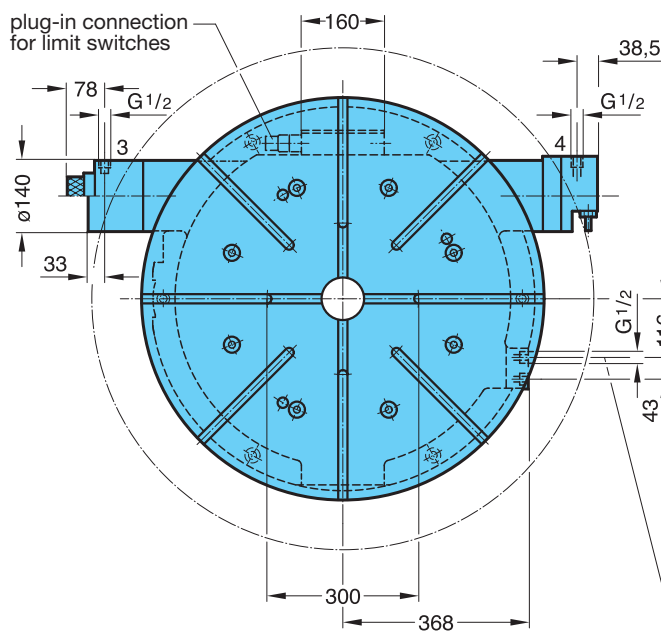
11. Dimensions

H 8 with accuracy class 4
H 7 with accuracy class 3
H 6 with accuracy class 2 and 1

G $\frac{1}{2}$ No 1–4
hydraulic entries



*for anti-clockwise rotation
inverse to the centre axis





11.16.3. Technical data

1. Type designation

FIBRO TAKT "indexing with lifting table top"

Block 1
11.16.3.Type Standard, Indexing Table with electric motor worm driveSize 3working position any

2. Table top dimensions

Table top execution		Table top dimension	
<input type="radio"/> round	<input type="checkbox"/> without Tee-slots	<input type="text" value="11"/>	<input type="checkbox"/> radial
<input checked="" type="radio"/> round	<input checked="" type="checkbox"/> with Tee-slots	<input type="text" value="13"/>	<input type="checkbox"/>
		<input type="text" value="00"/>	

Block 2

3. Table clamping

hydraulic Block 3

4. Worm drive

Encoder	<u>on motor shaft</u>	<input type="text" value="71"/>
Motor	<u>SIEMENS 1FT6 064 xAF71-xEGx</u>	
	<u>other drive units available on request</u>	

Block 4

5. Positioning

Any position dependent on the number of teeth in the face gears fittedBlock 5

6. Accuracy (at pressure/diameter: 63 bar/320 mm)

Class		<input type="text" value="4"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	<input type="text" value="1"/>
indexing accuracy seconds	Δs	± 12	± 6	± 3	$\pm 1,5$
	radians at dia. 320	$\pm 0,01$	$\pm 0,005$	$\pm 0,0024$	$\pm 0,0012$
repeatability as percentage of indexing accuracy	%	30	25	20	20
runout of table top centre bore	mm TIR	0,040	0,018	0,010	0,005
max. wobble of table top	mm TIR	0,035	0,020	0,008	0,005
parallelism: table top face/ mounting face	mm TIR	0,045	0,025	0,012	0,008
rectangularity of table top face to mounting face	mm TIR	0,045	0,025	0,012	0,008
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR	0,020	0,006	0,004	0,004

Block 6

7. Face gear, number of teeth/divisions

standard number of teeth 96 max. 720Block 7

8. Operating data

table top speed	rpm	<u>41,7</u>
pressure medium		<u>hydr. oil</u>
working pressure	bar	<u>63</u>
volume for clamping and unclamping	l	<u>0,048</u>
volumetric flow rate required	l/min	<u>18</u>
table lift	mm approx.	<u>4</u>
worm drive ratio	i	<u>72</u>
ratio	i	<u>72</u>
motor torque required	Nm	<u>10</u>
max. motor speed	rpm	<u>3000</u>
shipping weight (table dia. 320 mm)	kg approx.	<u>90</u>

9. Indexing time standard (n= 41,7 rpm, $i_{total} = 72$ (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request))

index	T	12	8	6	4	2
mass moment of inertia payload	kgm ²			<u>20</u>		
indexing time (unclamp, rotate, clamp)	s	<u>0,9</u>	<u>1,0</u>	<u>1,1</u>	<u>1,2</u>	<u>1,6</u>
*indexing time includes:						<u>0,30 s</u>
						<u>0,20 s</u>

1-5297-8-2-0

Example of ordering code number

Right of alterations reserved



10. Loading data (at working pressure 63 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 320 mm	N	20 000	①
tangential moment	Nm	5 500	②
tilting moment	Nm	3 900	③

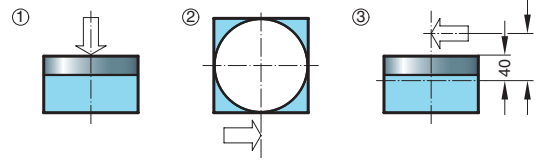


Table loads – carried on horizontal table top:

load, carried within 320 mm dia.	kg	500	④
mass moment of inertia of table load	kgm ²	20	⑤
moment of eccentric load	Nm	600	⑤

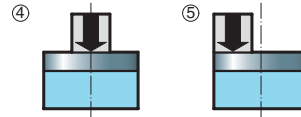
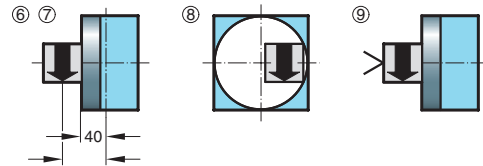


Table loads – carried on vertical table top:

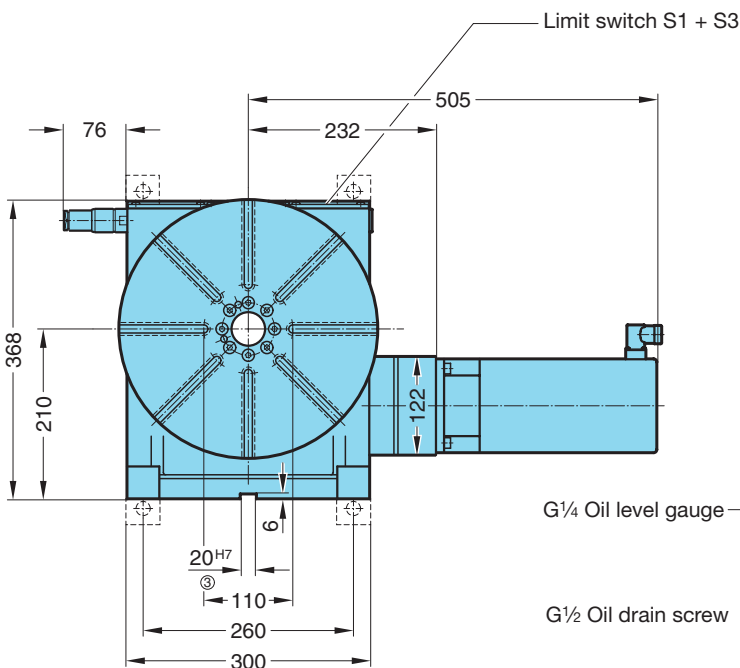
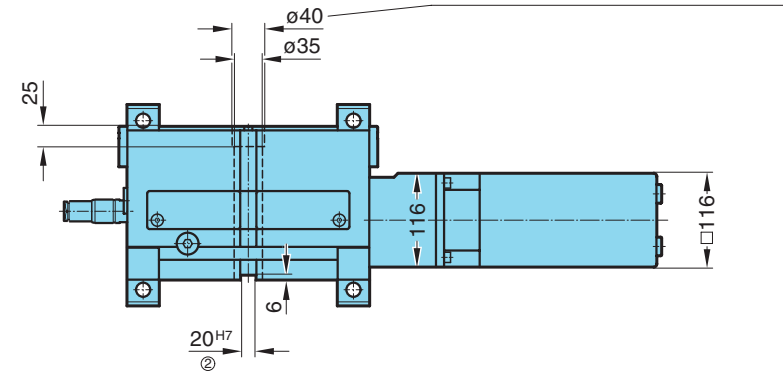
load, carried within 320 mm dia.	kg	200	⑥
mass moment of inertia of table load	kgm ²	20	⑥
torque or table load	Nm	335	⑦
moment of eccentric load	Nm	100	⑧
table load with tailstock	kg	500	⑨



11. Dimensions

H 8 with accuracy class 4
H 7 with accuracy class 3
H 6 with accuracy class 2 and 1

G¹/₄ Nr. 1 + 2
hydraulic entries



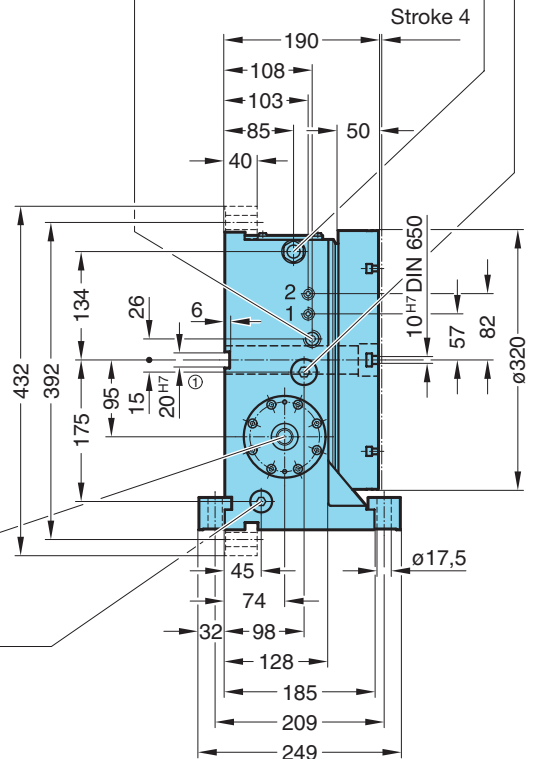
Limit switch S1 + S3

G¹/₄ Air purge
(G¹/₂ Air supply pipe)

G³/₄ Oil filling port

M25x1,5 Central
electrical connection

Stroke 4



G¹/₄ Oil level gauge

G¹/₂ Oil drain screw

tenon slot as required
state position ①, ②, ③



11.16.4. Technical data

1. Type designation		Block 1
FIBROTAKT "indexing with lifting table top"		11.16.4.
Type _____ Standard, Indexing Table with electric motor worm drive		
Size _____ 4		
working position _____ any		
2. Table top dimensions		Block 2
Table top execution	Table top dimension	
○ round without Tee-slots	∅ 400 mm	
⊕ round with Tee-slots	11 radial	
_____	_____	
_____	_____	
to customer's drawing	00	
3. Table clamping		Block 3
hydraulic	5	5
4. Worm drive		Block 4
Encoder on motor shaft	71	71
Motor	SIEMENS 1FT6 064 6AH7x-xEGx	
	other drive units available on request	
5. Positioning		Block 5
Any position dependent on the number of teeth in the face gears fitted		42
6. Accuracy (at pressure/diameter: 30 bar/400 mm)		Block 6
Class		4 3 2 1
indexing accuracy seconds	∠s	±12 ±6 ±3 ±1,5
repeatability as percentage of indexing accuracy	mm	±0,012 ±0,006 ±0,003 ±0,0015
runout of table top centre bore	%	30 25 20 20
max. wobble of table top	mm	0,040 0,018 0,010 0,005
parallelism: table top face/ mounting face	mm	0,035 0,020 0,008 0,005
rectangularity of table top face to mounting face	mm	0,050 0,025 0,012 0,008
parallelism: base tenon/ table top tenon	mm/100 mm	0,050 0,025 0,012 0,008
		0,020 0,006 0,004 0,004
7. Face gear, number of teeth/divisions		Block 7
standard number of teeth	360	max. 720
8. Operating data		
table top speed	rpm	32,1
pressure medium		hydr. oil
working pressure	bar	30
volume for clamping and unclamping	l	0,116
volumetric flow rate required	l/min	34,9
table lift	mm approx.	4
worm drive ratio	i	20
planetary gear system ratio	i	7
motor torque required	Nm	13,9
max. motor speed	rpm	4500
shipping weight (table dia. 400 mm)	kg approx.	180
9. Indexing time standard (n= 32,1 rpm, i _{total} = 140 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request)		
index	T	12 8 6 4 2
mass moment of inertia payload	kgm ²	45
indexing time (unclamp, rotate, clamp)	s	1,0 1,1 1,2 1,4 1,8
* indexing time includes: idle period of hydraulic system – locking and unlocking		0,40 s
cycle time of control system (customer) and controlling time of servo drive		0,20 s

Example of ordering code number 11.16.4 . . 5 . 71 . 42



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 400 mm	N	30 000	①
tangential moment	Nm	12 000	②
tilting moment	Nm	7 000	③

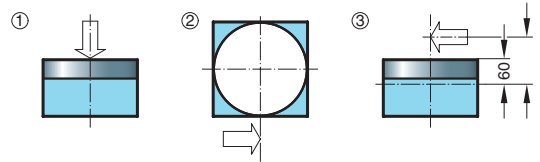


Table loads – carried on horizontal table top:

load, carried within 400 mm dia.	kg	750	④
mass moment of inertia of table load	kgm ²	45	⑤
moment of eccentric load	Nm	1 000	⑤

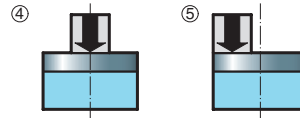
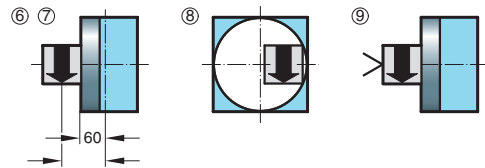
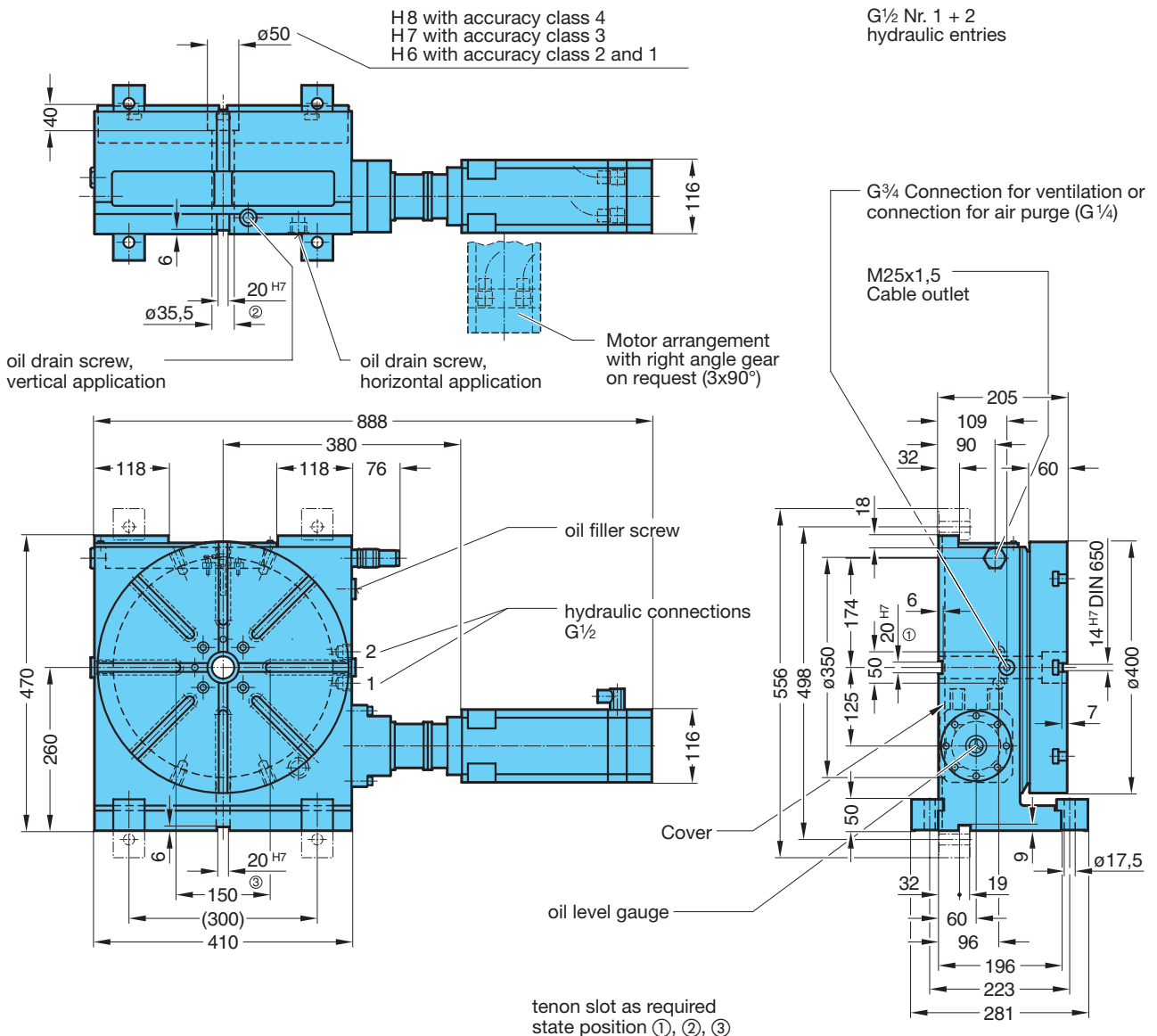


Table loads – carried on vertical table top:

load, carried within 400 mm dia.	kg	300	⑥
mass moment of inertia of table load	kgm ²	45	⑦
torque of table load	Nm	800	⑦
moment of eccentric load	Nm	390	⑧
table load with tailstock	kg	750	⑨



11. Dimensions



1-5300-0-0



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 500 mm	N	35 000	①
tangential moment	Nm	17 500	②
tilting moment	Nm	10 400	③

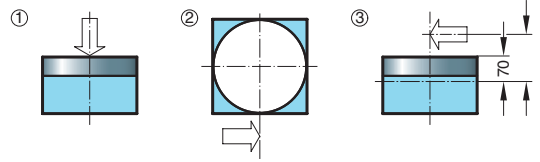


Table loads – carried on horizontal table top:

load, carried within 500 mm dia.	kg	1 000	④
mass moment of inertia of table load	kgm ²	100	⑤
moment of eccentric load	Nm	1 200	⑤

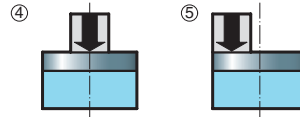
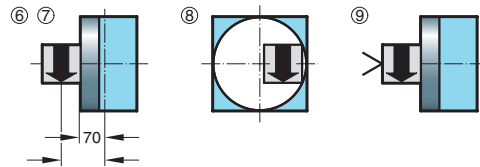
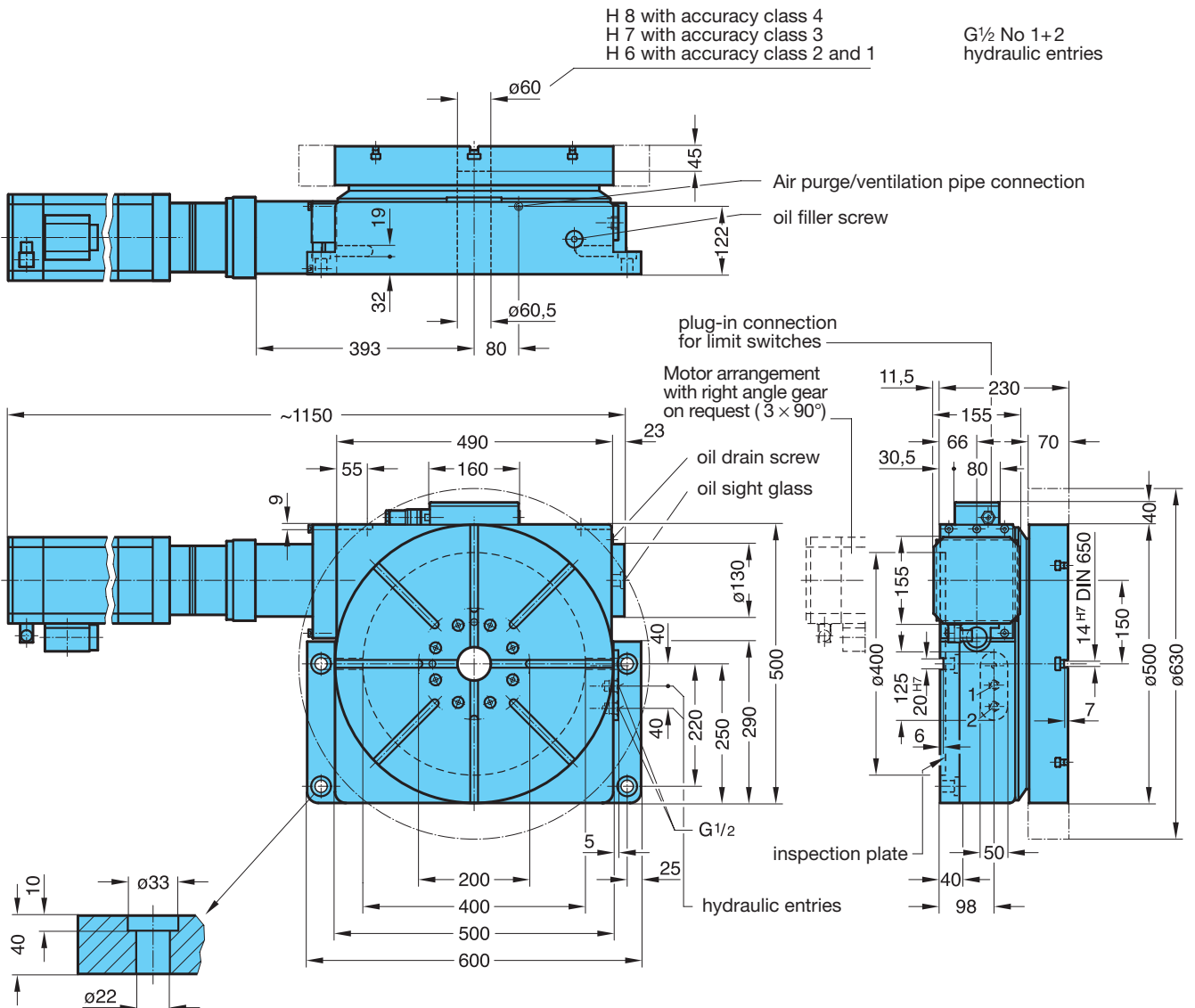


Table loads – carried on vertical table top:

load, carried within 500 mm dia.	kg	400	⑥
mass moment of inertia of table load	kgm ²	100	⑦
torque of table load	Nm	660	⑦
moment of eccentric load	Nm	740	⑧
table load with tailstock	kg	1 000	⑨



11. Dimensions



1-11586-2001-3 e



11.16.6. Technical data

1. Type designation

FIBROTAKT "indexing with lifting table top"

Block 1
11.16.6.

Type Standard, Indexing Table with electric motor worm drive

Size 6

working position any

2. Table top dimensions

Table top execution Table top dimension

		630 mm		800 mm
○ round	without Tee-slots	11		15
⊕ round	with Tee-slots	13	radial	17 radial

Block 2
□

to customer's drawing 00

3. Table clamping

hydraulic 7

Block 3
7

4. Worm drive

Encoder on motor shaft 71

motor SIEMENS 1FT6 086 xAF7x-xEGx
other drive units available on request

Block 4
71

5. Positioning

Any position dependent on the number of teeth in the face gears fitted

Block 5
42

6. Accuracy (at pressure/diameter: 30 bar/630 mm)

Class		4	3	2	1
indexing accuracy seconds	∠s	±12	±6	±3	±1,5
	radians at dia. 630	mm ±0,02	mm ±0,01	mm ±0,005	mm ±0,0025
repeatability as percentage of indexing accuracy	%	30	25	20	20
runout of table top					
centre bore	mm TIR	0,040	0,018	0,010	0,005
max. wobble of table top	mm TIR	0,050	0,025	0,015	0,009
parallelism: table top face/ mounting face	mm TIR	0,080	0,040	0,025	0,015
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR	0,020	0,006	0,004	0,004

Block 6
□

7. Face gear, number of teeth/divisions

standard number of teeth 360 max. 1440

Block 7
□□□□

8. Operating data

table top speed	rpm	21,4
pressure medium		hydr. oil
working pressure	bar	30
volume for clamping and unclamping	l	0,22
volumetric flow rate required	l/min	66,4
Table lift	mm approx.	4
worm drive	i	20
planetary gear system	i	7
ratio	i	140
motor torque required	Nm	39,1
max. motor speed	rpm	3000
shipping weight (table dia. 630 mm)	kg approx.	510

9. Indexing time

standard (n=24,1 rpm, $i_{total} = 140$ (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request)

division	T	12	8	6	4	2
mass moment of inertia payload	kgm ²			250		
indexing time (unclamp, rotate, clamp)	s	1,3	1,4	1,5	1,7	2,4
* indexing time includes: idle period of hydraulic system – locking and unlocking						0,50 s
cycle time of control system (customer) and controlling time of servo drive						0,20 s

Example of ordering code number 11.16.6 . □ . 7 . 71 . 42 . □ . □□□□

Right of alterations reserved



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 630 mm	N	40 000	①
tangential moment	Nm	33 000	②
tilting moment	Nm	20 500	③

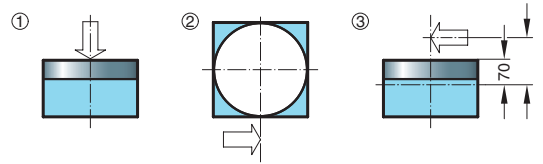


Table loads – carried on horizontal table top:

load, carried within 630 mm dia.	kg	1 500	④
mass moment of inertia of table load	kgm ²	250	⑤
moment of eccentric load	Nm	1 500	⑤

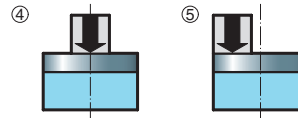
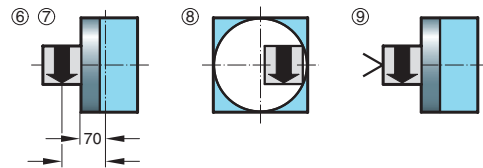
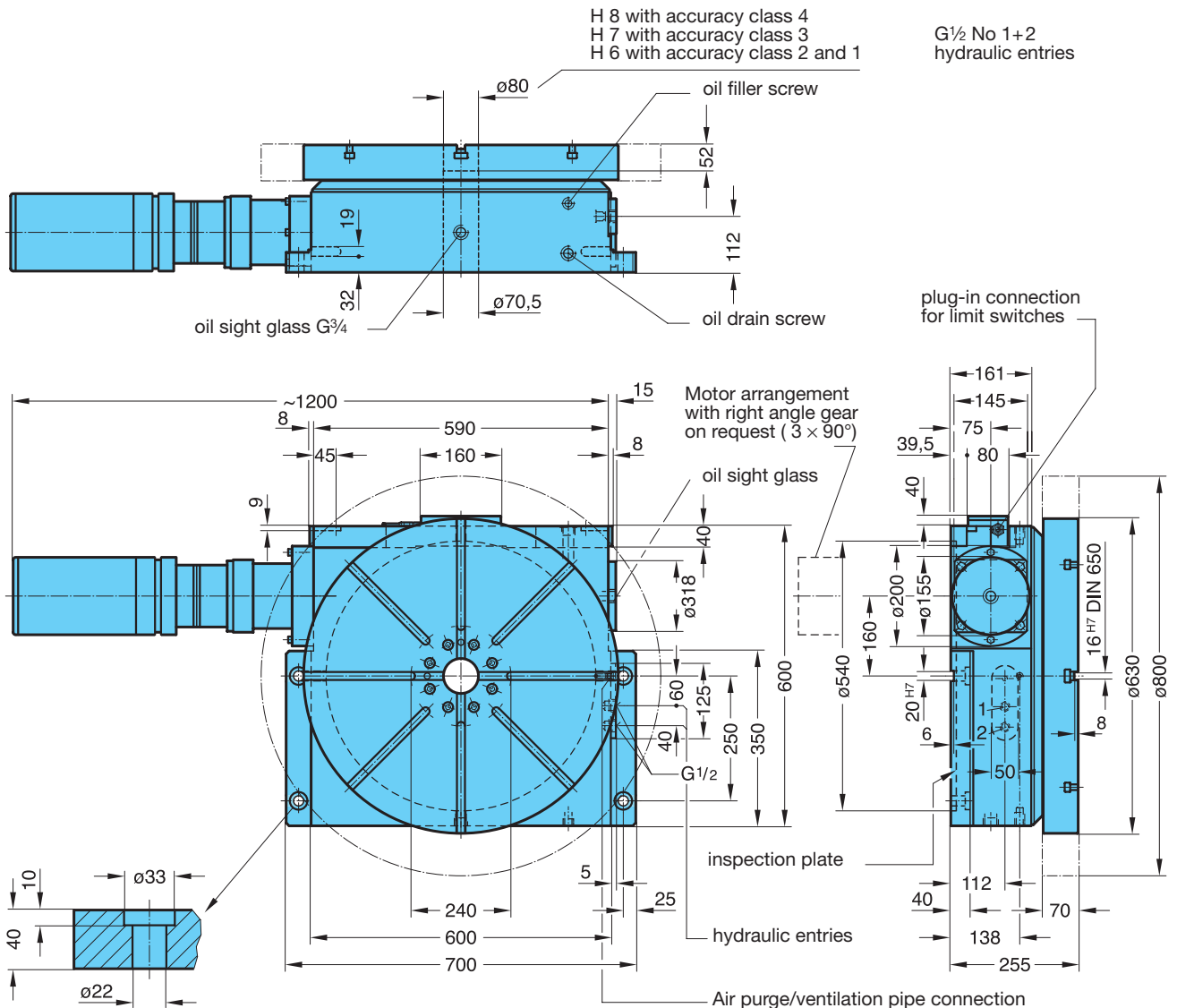


Table loads – carried on vertical table top:

load, carried within 630 mm dia.	kg	450	⑥
mass moment of inertia of table load	kgm ²	250	⑥
torque of table load	Nm	790	⑦
moment of eccentric load	Nm	800	⑧
table load with tailstock	kg	1 500	⑨



11. Dimensions



1-11589-2001-2 e



11.16.7. Technical data

1. Type designation

FIBROTAKT "indexing with lifting table top"

Block 1
11.16.7.

Type Standard, Indexing Table with electric motor worm drive

Size 7

working position any

2. Table top dimensions

Table top execution		Table top dimension	
○ round	without Tee-slots	800 mm	1000 mm
⊕ round	with Tee-slots	11 radial	15 radial
		13 radial	17 radial
to customer's drawing		00	

Block 2
□

3. Table clamping

hydraulic 5

Block 3
5

4. Worm drive

Encoder on motor shaft 71

Motor SIEMENS 1FT6 086 xAH7x-xEGx
other drive units available on request

Block 4
71

5. Positioning

Any position dependent on the number of teeth in the face gears fitted

Block 5
42

6. Accuracy (at pressure/diameter: 30 bar/800 mm)

Class	4	3	2	1
indexing accuracy seconds	±12	±6	±3	±1,5
radians at dia. 800	±0,024	±0,012	±0,006	±0,003
repeatability as percentage of indexing accuracy	30	25	20	20
runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005
max. wobble of table top	mm TIR 0,060	0,030	0,020	0,010
parallelism: table top face/ mounting face	mm TIR 0,080	0,050	0,030	0,018
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004

Block 6
□

7. Face gear, number of teeth/divisions

standard number of teeth 360 max. 1440

Block 7
□ □ □ □

8. Operating data

table top speed	rpm	22,5
pressure medium		hydr. oil
working pressure	bar	30
volume for clamping and unclamping	l	0,28
volumetric flow rate required	l/min	56,3
Table lift	mm approx.	4
worm drive	i	20
planetary gear system	i	10
ratio	i	200
motor torque required	Nm	31,1
max. motor speed	rpm	4500
shipping weight (table dia. 800 mm)	kg approx.	950

9. Indexing time standard (n=22,5 rpm, i_{total} = 200 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request))

division	T	12	8	6	4	2
mass moment of inertia payload	kgm ²			700		
indexing time (unclamp, rotate, clamp)	s	1,5	1,7	1,9	2,1	2,8
* indexing time includes: idle period of hydraulic system – locking and unlocking					0,50 s	
cycle time of control system (customer) and controlling time of servo drive					0,20 s	

Example of ordering code number 11.16.7 . □ . 5 . 71 . 42 . □ . □ □ □ □

Right of alterations reserved



10. Loading data (at working pressure 30 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 800 mm	N	60 000	①
tangential moment	Nm	56 000	②
tilting moment	Nm	33 000	③

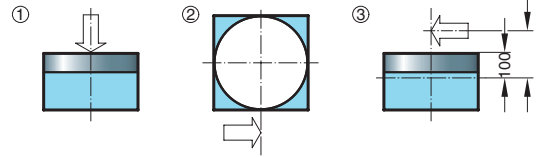


Table loads – carried on horizontal table top:

load, carried within 800 mm dia.	kg	2 400	④
mass moment of inertia of table load	kgm ²	700	⑤
moment of eccentric load	Nm	2 500	⑤

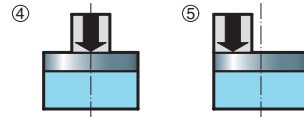
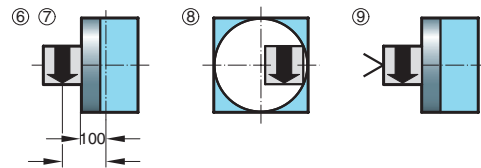
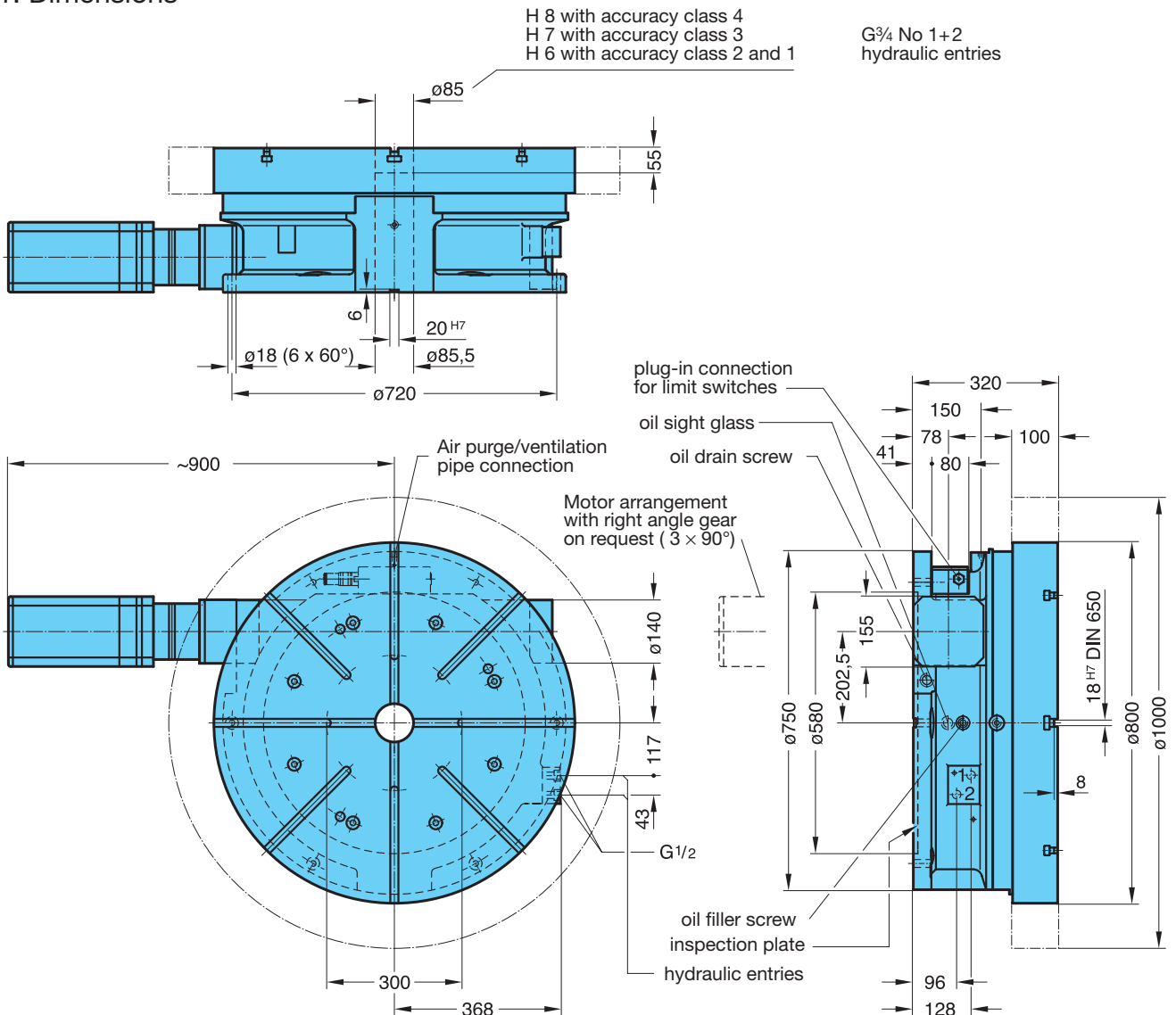


Table loads – carried on vertical table top:

load, carried within 800 mm dia.	kg	1 000	⑥
mass moment of inertia of table load	kgm ²	700	⑦
torque of table load	Nm	2 750	⑦
moment of eccentric load	Nm	1 800	⑧
table load with tailstock	kg	2 400	⑨



11. Dimensions



1-11590-B-2



11.16.8. Technical data

1. Type designation FIBRO TAKT "indexing with lifting table top" Type <u>Standard, Indexing Table with electric motor worm drive</u> Size <u>8</u> working position <u>any</u>		Block 1 11.16.8.																																													
2. Table top dimensions <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Table top execution</th> <th colspan="2">Table top dimension</th> </tr> </thead> <tbody> <tr> <td>○ round</td> <td>without Tee-slots</td> <td>11 1000 mm</td> <td>15 1250 mm</td> </tr> <tr> <td>⊕ round</td> <td>with Tee-slots</td> <td>13 radial</td> <td>17 radial</td> </tr> </tbody> </table> to customer's drawing <u>00</u>		Table top execution		Table top dimension		○ round	without Tee-slots	11 1000 mm	15 1250 mm	⊕ round	with Tee-slots	13 radial	17 radial	Block 2 <input type="checkbox"/>																																	
Table top execution		Table top dimension																																													
○ round	without Tee-slots	11 1000 mm	15 1250 mm																																												
⊕ round	with Tee-slots	13 radial	17 radial																																												
3. Table clamping hydraulic <u>5</u>		Block 3 <input type="checkbox"/>																																													
4. Worm drive Encoder <u>on motor shaft</u> <u>71</u> Motor <u>SIEMENS 1FT6 086 xAH7x-xEGx</u> <u>other drive units available on request</u>		Block 4 <input type="checkbox"/>																																													
5. Positioning <u>Any position dependent on the number of teeth in the face gears fitted</u>		Block 5 <input type="checkbox"/>																																													
6. Accuracy (at pressure/diameter: 50 bar/1000 mm) Class <u>4</u> <u>3</u> <u>2</u> <u>1</u> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Class 4</th> <th>Class 3</th> <th>Class 2</th> <th>Class 1</th> </tr> </thead> <tbody> <tr> <td>indexing accuracy seconds</td> <td>±12</td> <td>±6</td> <td>±3</td> <td>±1,5</td> </tr> <tr> <td> radians at dia. 1000</td> <td>±0,03</td> <td>±0,015</td> <td>±0,008</td> <td>±0,004</td> </tr> <tr> <td>repeatability as percentage of indexing accuracy</td> <td>30</td> <td>25</td> <td>20</td> <td>20</td> </tr> <tr> <td>runout of table top</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> centre bore</td> <td>mm TIR 0,040</td> <td>0,018</td> <td>0,010</td> <td>0,005</td> </tr> <tr> <td>max. wobble of table top</td> <td>mm TIR 0,070</td> <td>0,035</td> <td>0,025</td> <td>0,015</td> </tr> <tr> <td>parallelism: table top face/ mounting face</td> <td>mm TIR 0,090</td> <td>0,050</td> <td>0,040</td> <td>0,025</td> </tr> <tr> <td>parallelism: base tenon/ table top tenon</td> <td>mm/ 100 mm TIR 0,020</td> <td>0,006</td> <td>0,004</td> <td>0,004</td> </tr> </tbody> </table>			Class 4	Class 3	Class 2	Class 1	indexing accuracy seconds	±12	±6	±3	±1,5	radians at dia. 1000	±0,03	±0,015	±0,008	±0,004	repeatability as percentage of indexing accuracy	30	25	20	20	runout of table top					centre bore	mm TIR 0,040	0,018	0,010	0,005	max. wobble of table top	mm TIR 0,070	0,035	0,025	0,015	parallelism: table top face/ mounting face	mm TIR 0,090	0,050	0,040	0,025	parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004	Block 6 <input type="checkbox"/>
	Class 4	Class 3	Class 2	Class 1																																											
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7. Face gear, number of teeth/divisions standard number of teeth <u>360</u> max. 1440		Block 7 <input type="checkbox"/>																																													
8. Operating data <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>table top speed</td><td>rpm</td><td>14,1</td></tr> <tr><td>pressure medium</td><td></td><td>hydr. oil</td></tr> <tr><td>working pressure</td><td>bar</td><td>50</td></tr> <tr><td>volume for clamping and unclamping</td><td>l</td><td>0,30</td></tr> <tr><td>volumetric flow rate required</td><td>l/min</td><td>60,7</td></tr> <tr><td>Table lift</td><td>mm approx.</td><td>4</td></tr> <tr><td>worm drive</td><td>i</td><td>20</td></tr> <tr><td>planetary gear system</td><td>i</td><td>16</td></tr> <tr><td></td><td></td><td>360</td></tr> <tr><td>ratio</td><td>i</td><td>120</td></tr> <tr><td>motor torque required</td><td>Nm</td><td>35,7</td></tr> <tr><td>max. motor speed</td><td>rpm</td><td>4500</td></tr> <tr><td>shipping weight (table dia. 1000 mm)</td><td>kg approx.</td><td>1690</td></tr> </tbody> </table>		table top speed	rpm	14,1	pressure medium		hydr. oil	working pressure	bar	50	volume for clamping and unclamping	l	0,30	volumetric flow rate required	l/min	60,7	Table lift	mm approx.	4	worm drive	i	20	planetary gear system	i	16			360	ratio	i	120	motor torque required	Nm	35,7	max. motor speed	rpm	4500	shipping weight (table dia. 1000 mm)	kg approx.	1690							
table top speed	rpm	14,1																																													
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planetary gear system	i	16																																													
		360																																													
ratio	i	120																																													
motor torque required	Nm	35,7																																													
max. motor speed	rpm	4500																																													
shipping weight (table dia. 1000 mm)	kg approx.	1690																																													
9. Indexing time standard (n= 14,1 rpm, i _{total} = 320 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>division</th> <th>T</th> <th>12</th> <th>8</th> <th>6</th> <th>4</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>mass moment of inertia payload</td> <td>kgm²</td> <td></td> <td></td> <td>1500</td> <td></td> <td></td> </tr> <tr> <td>indexing time (unclamp, rotate, clamp)</td> <td>s</td> <td>1,7</td> <td>1,9</td> <td>2,0</td> <td>2,4</td> <td>3,5</td> </tr> </tbody> </table> * indexing time includes: idle period of hydraulic system – locking and unlocking <u>0,50 s</u> cycle time of control system (customer) and controlling time of servo drive <u>0,20 s</u>		division	T	12	8	6	4	2	mass moment of inertia payload	kgm ²			1500			indexing time (unclamp, rotate, clamp)	s	1,7	1,9	2,0	2,4	3,5																									
division	T	12	8	6	4	2																																									
mass moment of inertia payload	kgm ²			1500																																											
indexing time (unclamp, rotate, clamp)	s	1,7	1,9	2,0	2,4	3,5																																									

Example of ordering code number 11.16.8. . . . 5 . . 71 . . 42 . .



10. Loading data (at working pressure 50 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 1000 mm	N	120 000	①
tangential moment	Nm	130 000	②
tilting moment	Nm	70 000	③

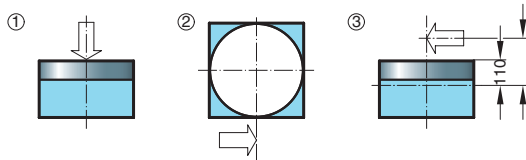


Table loads – carried on horizontal table top:

load, carried within 1000 mm dia.	kg	3 800	④
mass moment of inertia of table load	kgm ²	1 500	⑤
moment of eccentric load	Nm	3 600	⑤

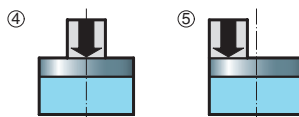
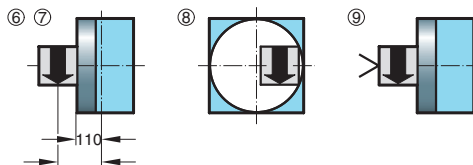
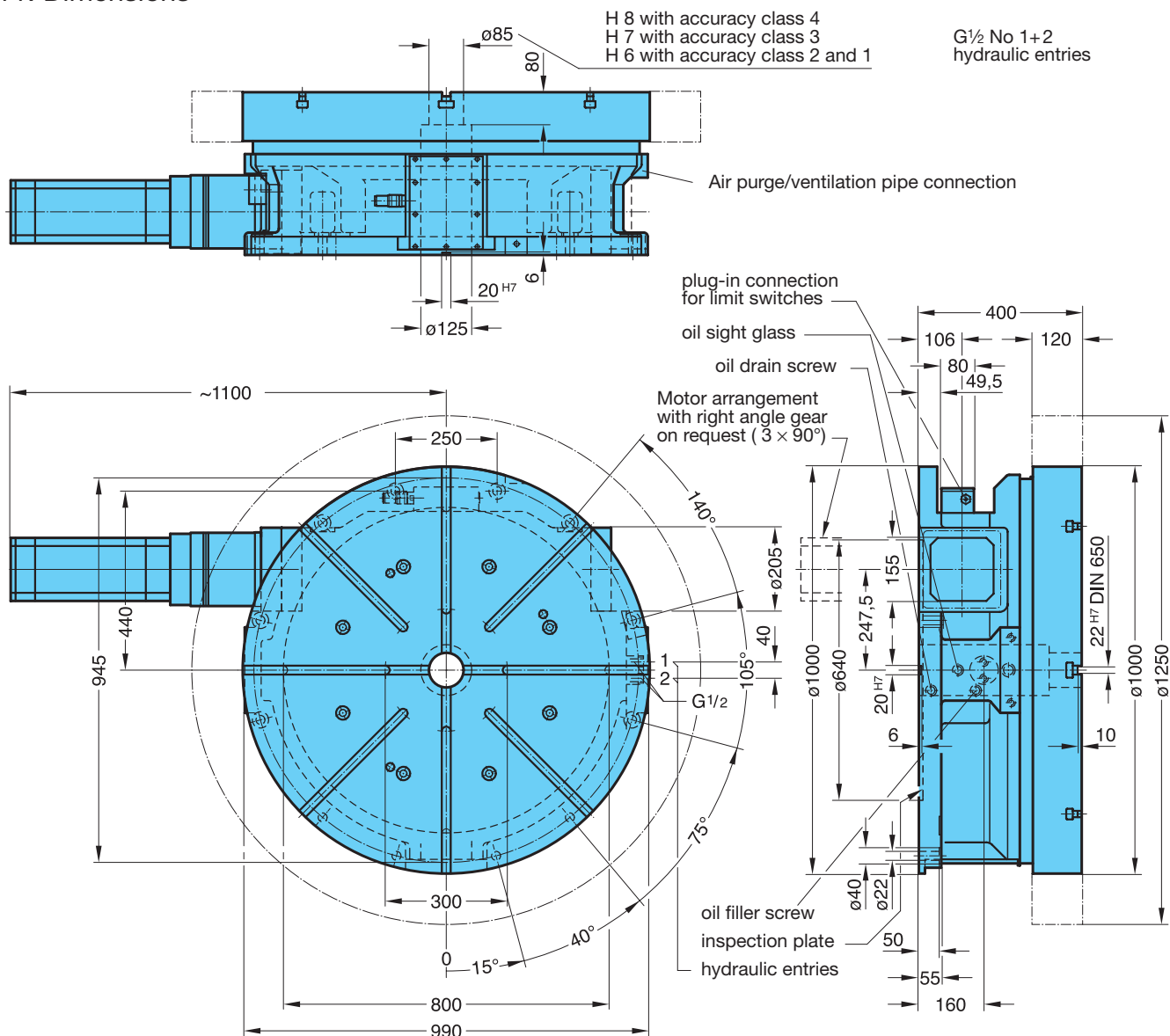


Table loads – carried on vertical table top:

load, carried within 1000 mm dia.	kg	1 500	⑥
mass moment of inertia of table load	kgm ²	1 500	⑥
torque of table load	Nm	2 750	⑦
moment of eccentric load	Nm	2 800	⑧
table load with tailstock	kg	3 800	⑨



11. Dimensions



1-11592-B-2



10.16.7. Technical data

1. Type designation				Block 1		
FIBRO TAKT "indexing with non-lifting table top"				10.16.7.		
Type <u>Standard, Indexing Table with electric motor worm drive</u>						
Size <u>7</u>						
working position <u>table top horizontal, indexing table axis vertical</u>						
2. Table top dimensions				Block 2		
Table top execution		Table top dimension				
		800 mm	1000 mm			
○ round	without Tee-slots	11	15			
⊕ round	with Tee-slots	13 radial	17 radial	<input type="checkbox"/>		
to customer's drawing		<u>00</u>				
3. Table clamping				Block 3		
hydraulic <u>5</u>				5		
4. Worm drive				Block 4		
Encoder <u>on motor shaft</u> <u>71</u>				71		
Motor <u>SIEMENS 1FT6 086 xAF71-xEGx</u>						
<u>other drive units available on request</u>						
5. Positioning				Block 5		
<u>Any position dependent on the number of teeth in the face gears fitted</u>				42		
6. Accuracy (at pressure/diameter: 100 bar/800 mm)				Block 6		
Class <u>4</u> <u>3</u> <u>2</u> <u>1</u>						
indexing accuracy seconds		∠s	±12	±6	±3	±1,5
radians at dia. 800		mm	±0,024	±0,012	±0,006	±0,003
repeatability as percentage of indexing accuracy		%	30	25	20	20
runout of table top centre bore		mm TIR	0,040	0,018	0,010	0,005
max. wobble of table top		mm TIR	0,070	0,035	0,025	0,015
parallelism: table top face/ mounting face		mm TIR	0,080	0,050	0,030	0,018
parallelism: base tenon/ table top tenon		mm/ 100 mm TIR	0,020	0,006	0,004	0,004
7. Face gear, number of teeth/divisions				Block 7		
standard number of teeth		360	max. 720	<input type="checkbox"/>		
8. Operating data						
table top speed	rpm	23,8				
pressure medium		hydr. oil				
working pressure	bar	100				
volume for clamping and unclamping	l	0,25				
volumetric flow rate required	l/min	80				
worm drive	i	14				
spur gear drive	i	9				
ratio	i	126				
motor torque required	Nm	40				
max. motor speed	rpm	3000				
shipping weight (table dia.800 mm)	kg approx.	1700				
9. Indexing time standard (n=23,8 rpm, i _{total} = 126 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request)						
division	T	12	8	6	4	2
mass moment of inertia payload	kgm ²	400				
indexing time (unclamp, rotate, clamp)	s	1,5	1,7	1,8	2,1	2,7
* indexing time includes:	idle period of hydraulic system - locking and unlocking	0,50 s				
	cycle time of control system (customer) and controlling time of servo drive	0,20 s				

1-11581-7-1 e

Example of ordering code number **10.16.7.** . . 5 . **71** . **42** . .



10. Loading data (at working pressure 100 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 800 mm	N	60000	①
tangential moment	Nm	40000	②
tilting moment	Nm	30000	③

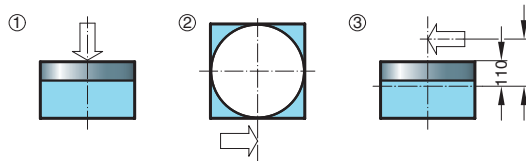
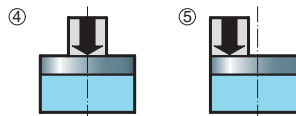


Table loads – carried on horizontal table top:

load, carried within 800 mm dia.	kg	3000	④
mass moment of inertia of table load	kgm ²	400	⑤
moment of eccentric load*	Nm	300	⑤

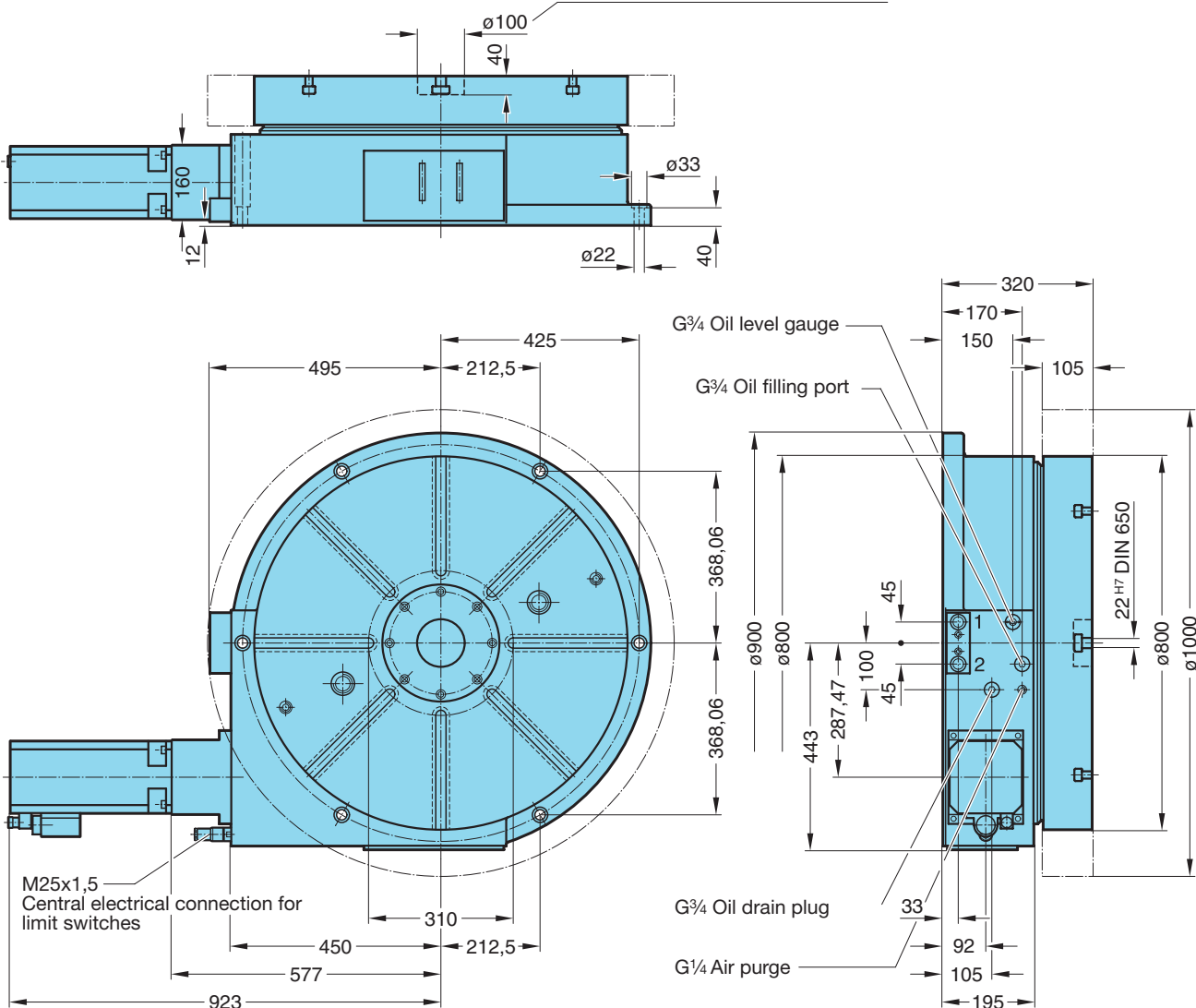
* higher values depending on payload



11. Dimensions

H 8 with accuracy class 4
H 7 with accuracy class 3
H 6 with accuracy class 2 and 1

G $\frac{3}{4}$ Nr. 1 + 2 hydraulic entries



1-11592-B-2 e



10.16.8. Technical data

1. Type designation FIBRO TAKT "indexing with non-lifting table top" Type <u>Standard, Indexing Table with electric motor worm drive</u> Size <u>8</u> working position <u>table top horizontal, indexing table axis vertical</u>			Block 1 10.16.8.																
2. Table top dimensions <table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Table top execution</td> <td colspan="2">Table top dimension</td> </tr> <tr> <td>○ round without Tee-slots</td> <td>11</td> <td>∅ 1000 mm radial</td> <td>15</td> </tr> <tr> <td>⊕ round with Tee-slots</td> <td>13</td> <td>∅ 1250 mm radial</td> <td>17</td> </tr> <tr> <td colspan="2">to customer's drawing</td> <td colspan="2">[00]</td> </tr> </table>			Table top execution		Table top dimension		○ round without Tee-slots	11	∅ 1000 mm radial	15	⊕ round with Tee-slots	13	∅ 1250 mm radial	17	to customer's drawing		[00]		Block 2 <input type="checkbox"/>
Table top execution		Table top dimension																	
○ round without Tee-slots	11	∅ 1000 mm radial	15																
⊕ round with Tee-slots	13	∅ 1250 mm radial	17																
to customer's drawing		[00]																	
3. Table clamping <u>hydraulic</u> [5]			Block 3 <input type="checkbox"/>																
4. Worm drive Encoder <u>on motor shaft</u> [71] Motor <u>SIEMENS 1FT6 105 8AF71-xEGx</u>			Block 4 <input type="checkbox"/>																
5. Positioning <u>Any position dependent on the number of teeth in the face gears fitted</u>			Block 5 <input type="checkbox"/>																
6. Accuracy (at pressure/diameter: 100 bar/1000 mm)																			
Class		[4]	[3]	[2]	[1]														
indexing accuracy seconds	∠s	±12	±6	±3	±1,5														
radians at dia. 1000	mm	±0,03	±0,015	±0,008	±0,004														
repeatability as percentage of indexing accuracy	%	30	25	20	20														
runout of table top centre bore	mm TIR	0,040	0,018	0,010	0,005														
max. wobble of table top	mm TIR	0,070	0,035	0,025	0,015														
parallelism: table top face/ mounting face	mm TIR	0,090	0,050	0,040	0,025														
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR	0,020	0,006	0,004	0,004														

 Block 6 || **7. Face gear, number of teeth/divisions** standard number of teeth 360 max. 1440 | | | Block 7 |
8. Operating data						
table top speed	rpm	16,7				
pressure medium		hydr. oil				
working pressure	bar	100				
volume for clamping and unclamping	l	0,37				
volumetric flow rate required	l/min	119				
worm drive	i	18				
spur gear drive	i	10				
ratio	i	180				
motor torque required	Nm	51				
max. motor speed	rpm	3000				
shipping weight (table dia. 1000 mm)	kg approx.	2500				
9. Indexing time standard (n=16,7 rpm, i_{total} = 180 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request))						
division	T	12	8	6	4	2
mass moment of inertia payload	kgm²	1500				
indexing time (unclamp, rotate, clamp)	s	1,9	2,2	2,4	2,8	3,7
* indexing time includes: idle period of hydraulic system – locking and unlocking		0,50 s				
cycle time of control system (customer) and controlling time of servo drive		0,20 s				

Example of ordering code number 10.16.8 . . 5 . 71 . 42



10. Loading data (at working pressure 100 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 1000 mm	N	120 000	①
tangential moment	Nm	54 000	②
tilting moment	Nm	62 000	③

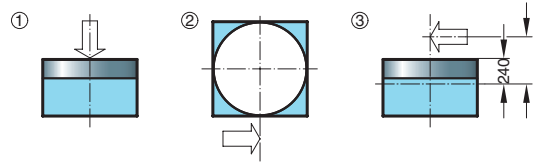
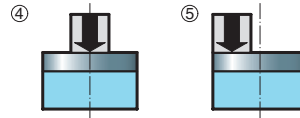


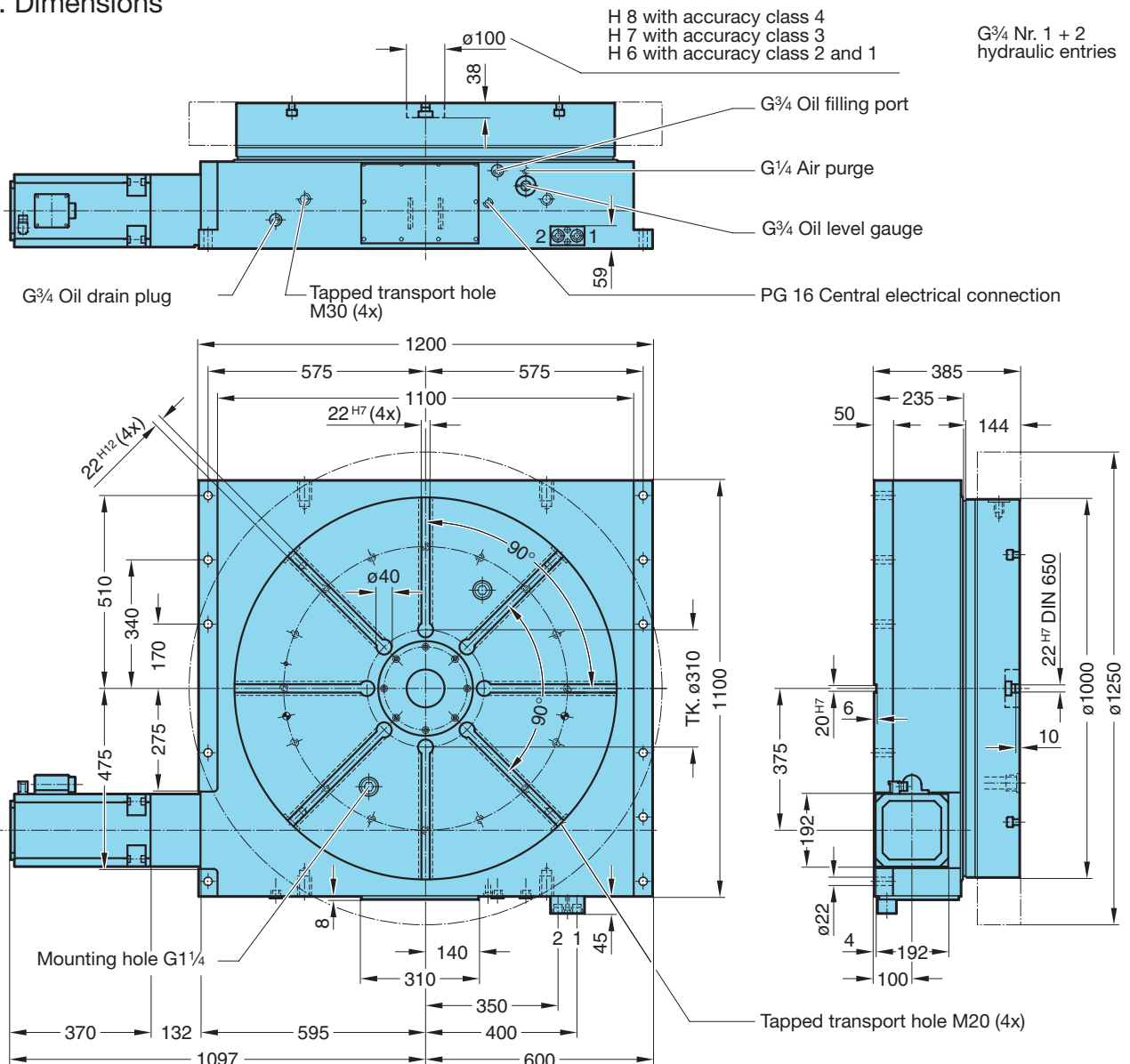
Table loads – carried on horizontal table top:

load, carried within 1000 mm dia.	kg	5 000	④
mass moment of inertia of table load	kgm ²	1 500	⑤
moment of eccentric load*	Nm	700	⑤

* higher values depending on payload



11. Dimensions



1-14013-0-1-0



10.16.9. Technical data

1. Type designation

FIBRO TAKT "indexing with non-lifting table top"

Block 1
10.16.9.

Type Standard, Indexing Table with electric motor worm drive

Size 9

working position table top horizontal, indexing table axis vertical

2. Table top dimensions

Table top execution		Table top dimension	
○ round	without Tee-slots	∅ 1250 mm	∅ 1600 mm
⊕ round	with Tee-slots	11 radial	15 radial
		13 radial	17 radial
to customer's drawing		00	

Block 2
□

3. Table clamping

hydraulic 5

Block 3
5

4. Worm drive

Encoder on motor shaft 71

Motor SIEMENS 1FT6 102 8AH71-xEGx

Block 4
71

5. Positioning

Any position dependent on the number of teeth in the face gears fitted

Block 5
42

6. Accuracy (at pressure/diameter: 100 bar/1250 mm)

Class	4	3	2	1
indexing accuracy seconds	±12	±6	±3	±1,5
radians at dia. 1250	±0,04	±0,02	±0,01	±0,005
repeatability as percentage of indexing accuracy	30	25	20	20
runout of table top centre bore	mm TIR 0,040	0,018	0,010	0,005
max. wobble of table top	mm TIR 0,075	0,035	0,025	0,015
parallelism: table top face/ mounting face	mm TIR 0,100	0,065	0,055	0,040
parallelism: base tenon/ table top tenon	mm/ 100 mm TIR 0,020	0,006	0,004	0,004

Block 6
□

7. Face gear, number of teeth/divisions

standard number of teeth 360 max. 1440

Block 7
□ □ □ □

8. Operating data

table top speed	rpm	12,5
pressure medium		hydr. oil
working pressure	bar	100
volume for clamping and unclamping	l	0,35
volumetric flow rate required	l/min	115
backgear	i	2
worm drive	i	15
spur gear drive	i	10
ratio	i	360
motor torque required	Nm	45
max. motor speed	rpm	4500
shipping weight (table dia. 1250 mm)	kg approx.	4000

9. Indexing time standard (n=12,5 rpm, i_{total} = 360 (special versions for higher mass moments of inertia or for shorter indexing times, e.g. with planetary gear unit, available on request)

division	T	12	8	6	4	2
mass moment of inertia payload	kgm ²	3300				
indexing time (unclamp, rotate, clamp)	s	2,2	2,6	2,8	3,3	4,5
* indexing time includes: idle period of hydraulic system – locking and unlocking		0,50 s				
cycle time of control system (customer) and controlling time of servo drive		0,20 s				

Example of ordering code number 10.16.9 . □ . 5 . 71 . 42 . □ . □ □ □ □

Right of alterations reserved



10. Loading data (at working pressure 100 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 1250 mm	N	140 000	①
tangential moment	Nm	90 000	②
tilting moment	Nm	66 000	③

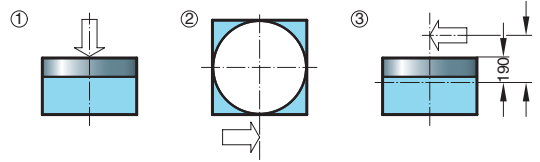
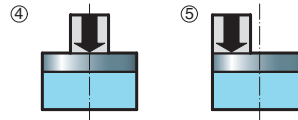


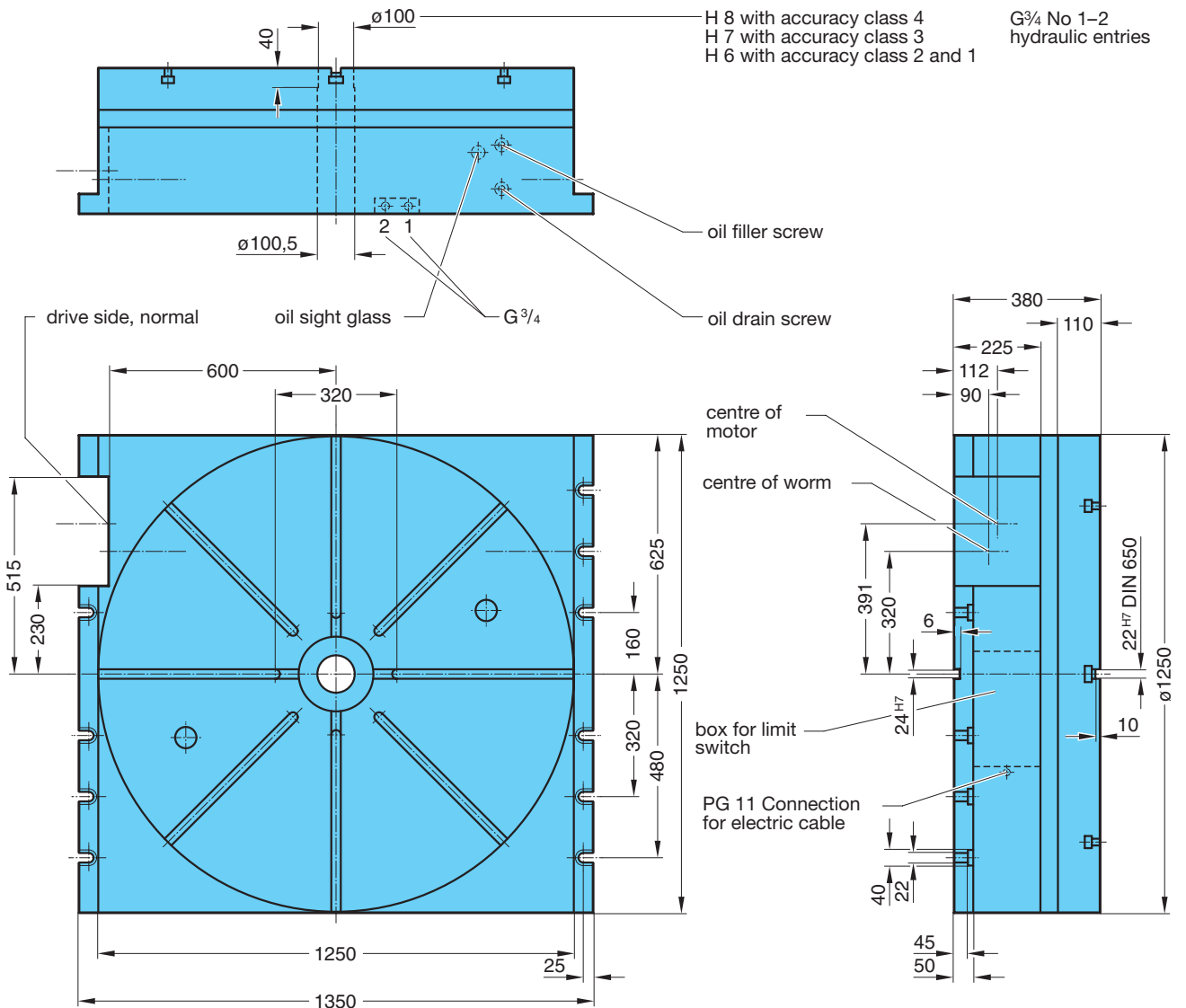
Table loads – carried on horizontal table top:

load, carried within 1250 mm dia.	kg	7 000	④
mass moment of inertia of table load	kgm ²	3 300	⑤
moment of eccentric load*	Nm	900	⑤

* higher values depending on payload



11. Dimensions



1-14015-0-1-0



10. Loading data (at working pressure 63 bar)

Machining forces – against clamped table top:

machining thrust perpendicular to table top within 1600 mm	N	160 000	①
tangential moment	Nm	200 000	②
tilting moment	Nm	160 000	③

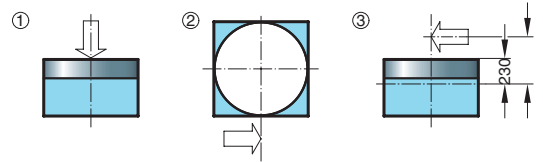
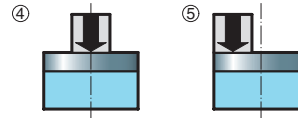


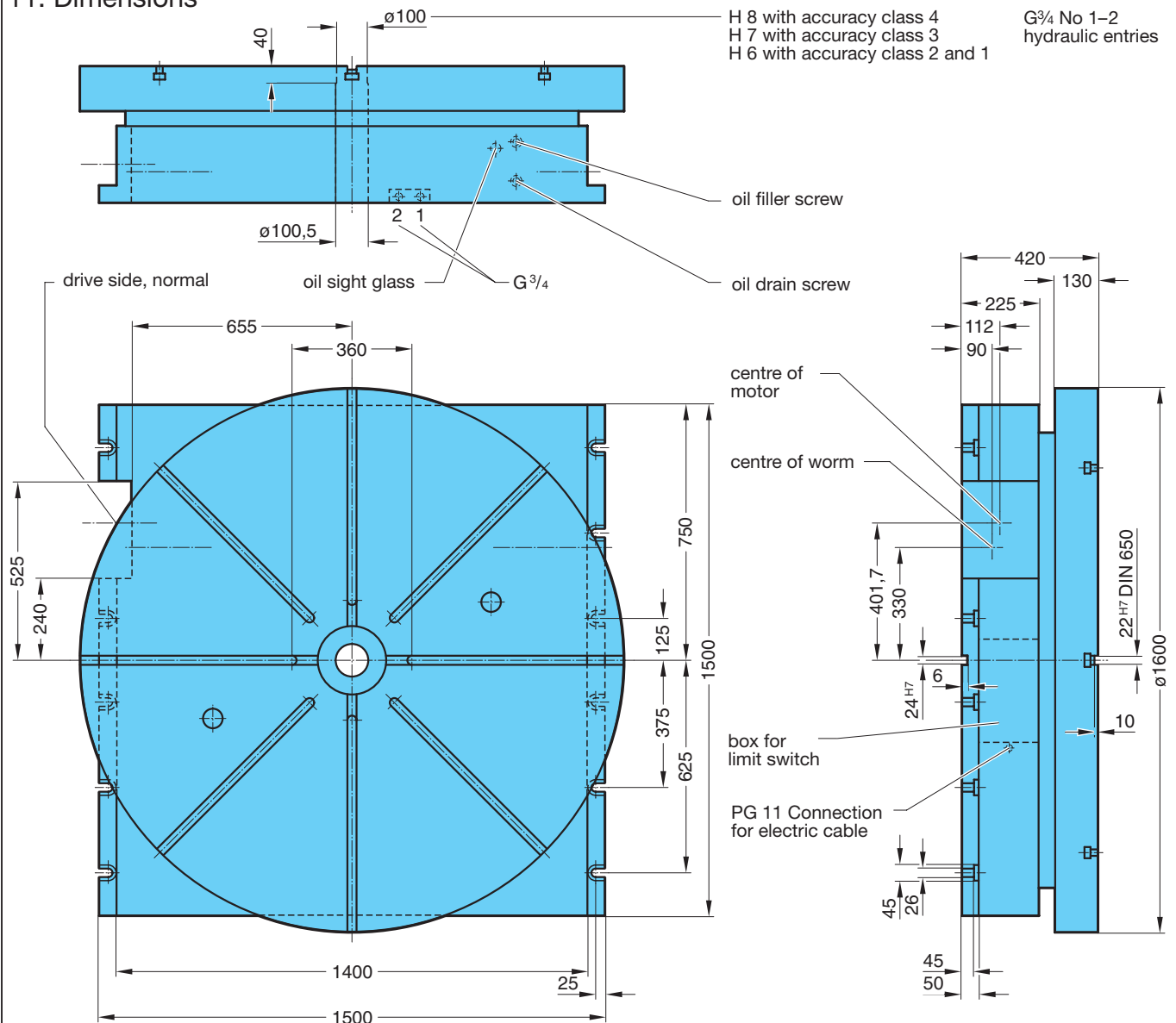
Table loads – carried on horizontal table top:

load, carried within 1600 mm dia.	kg	20 000	④
mass moment of inertia of table load	kgm ²	6 900	⑤
moment of eccentric load*	Nm	1 500	⑤

* higher values depending on payload



11. Dimensions



1-14017-0-1 0



FIBROTAKT 11.16.7
Size 7
Table top dimensions 1100 x 240 mm
with controlled oil manifold
with 8 integrated jaw chucks



A horizontal rectangular box with a thin black border, currently empty.

A large, vertically oriented rectangular box with a thin black border and rounded corners, currently empty.



FIBRO GMBH
Bereich Rundschalttische
Postfach 1120
D-74183 Weinsberg

Sender:
Company _____
Name _____
Department _____
Telephone _____
Street _____
City _____
Fax _____
E-mail _____
Inquiry No. _____
FIBRO Representative
Name _____

1. Type designation

Code number: . .

- Fibrotakt: lifting non-lifting
Type of construction: standard special design
 pneumatic, internal control pneumatic, external control
 hydraulic, external control electric worm drive motor
Size: _____

2. Table top

Code number: .

- Dimension: _____ mm
Execution:
 round without T-slots round with T-slots as per customer's drawing

3. Locking

Code number: .

- pneumatic hydraulic

4. Rotary drive

Code number: .

- rack + pinion
angle of rotation: up to 180° (T2) up to 120° (T3) up to 90° (T4)
direction of rotation:
 CW CCW
 multiple CW and CCW pendulum motion only
 rotation starting CW rotation starting CCW
 worm
 absolute encoder at motor

Determination of the moment of inertia

Moment of inertia for solid body

$$J = \frac{1}{2} \cdot r^2 \cdot m$$

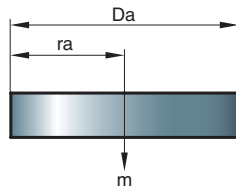
or

$$J = \frac{m \cdot Da^2}{8} \text{ (kgm}^2\text{)}$$

Da = diameter (m)

ra = radius of gyration (m)

m = mass (kg)



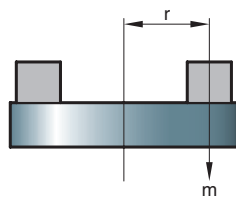
Moment of inertia from individual weights
(approximation formula)

$$J \approx m \cdot c \cdot r^2 \cdot 1,1 \text{ (kgm}^2\text{)}$$

m = mass of each load (kg)

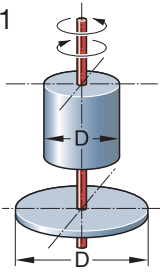
c = number

r = radius of gyration (m)



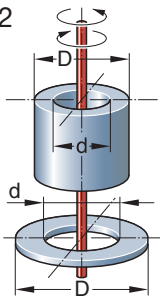
1. Bodies with central axis

1.1 Solid cylinder or flat disc rotating about its own axis.



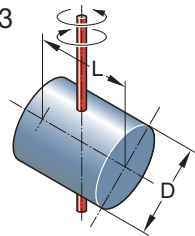
$$J = \frac{D^2}{8} \times m$$

1.2 Hollow cylinder or flat ring rotating about its own axis



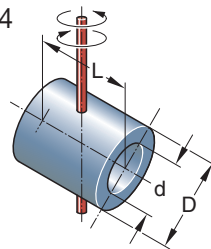
$$J = \frac{D^2 + d^2}{8} \times m$$

1.3 Solid cylinder rotating about an axis perpendicular to its central axis.



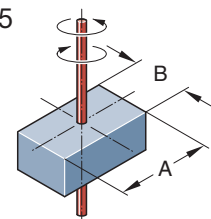
$$J = \left(\frac{L^2}{12} + \frac{D^2}{16} \right) \times m$$

1.4 Hollow cylinder rotating about an axis perpendicular to its central axis.



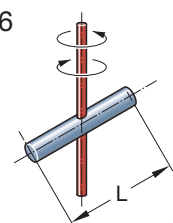
$$J = \left(\frac{L^2}{12} + \frac{D^2 + d^2}{16} \right) \times m$$

1.5 Rectangular plate of any thickness rotating about one central axis.



$$J = \frac{A^2 + B^2}{12} \times m$$

1.6 Long thin rod of any cross-section rotating about one central axis

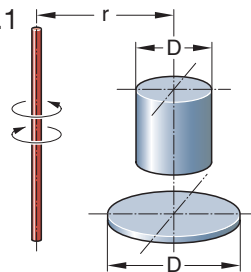


$$J = \frac{L^2}{12} \times m$$

J = Moment of inertia in kgm²
Dimensions in metres, masses in kg

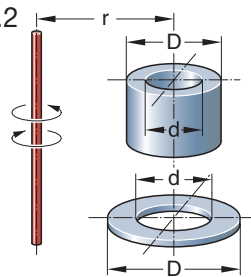
2. Bodies with offset axis

2.1 Solid cylinder or flat disc rotating about an external axis.



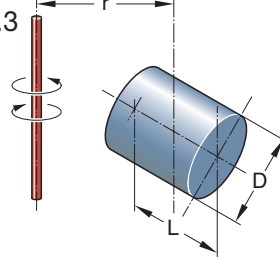
$$J = \left(\frac{D^2}{8} + r^2 \right) \times m$$

2.2 Hollow cylinder or flat ring rotating about an external axis.



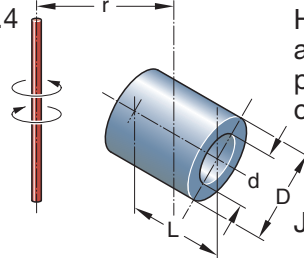
$$J = \left(\frac{D^2 + d^2}{8} + r^2 \right) \times m$$

2.3 Solid cylinder rotating about an external axis perpendicular to its own central axis.



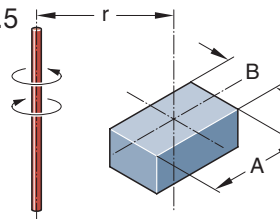
$$J = \left(\frac{L^2}{12} + \frac{D^2}{16} + r^2 \right) \times m$$

2.4 Hollow cylinder rotating about an external axis perpendicular to its own central axis.



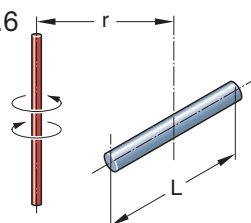
$$J = \left(\frac{L^2}{12} + \frac{D^2 + d^2}{16} + r^2 \right) \times m$$

2.5 Rectangular plate of any thickness rotating about an external central axis parallel to the axis of symmetry.



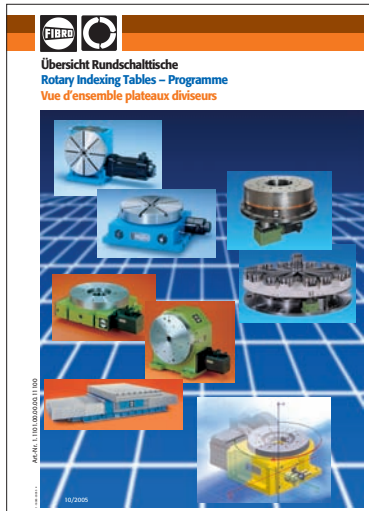
$$J = \left(\frac{A^2 + B^2}{12} + r^2 \right) \times m$$

2.6 Long thin rod of any cross-section rotating about an external axis perpendicular to its own central axis.



$$J = \left(\frac{L^2}{12} + r^2 \right) \times m$$

J = Moment of inertia in kgm²
Dimensions in metres, masses in kg



Product Overview

FIBRO produces various models of rotary indexing tables, so users can be sure of finding the ideal solution for any application. Just ask for more information on our full range of rotary indexing tables.



FIBROTAKT® Flush-Mount Tables

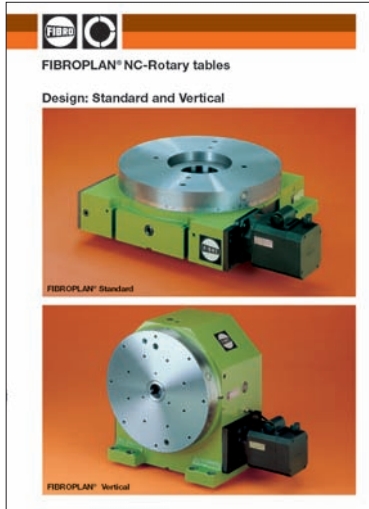
FIBROTAKT® Flush-Mount Tables with face gear were developed for use on rotary transfer machines. The concept derives from the well-tried FIBROTAKT®-series and is based on the principle of combining indexing and locking in a non-lifting system of face gear rings. Besides many other special advantages, FIBROTAKT® Flush-Mount Tables offer the following benefits:

- housing of uninterrupted round shape. Underslung drive train.
- great rigidity, by virtue of locking into face gear rings of largest possible diameter
- high indexing accuracy up to $\pm 1''$
- very fast indexing times with heavy table loads
- special designs for specific applications

Range available in any size from $\varnothing 345$ mm to $\varnothing 2500$ mm in horizontal and vertical execution



Product range



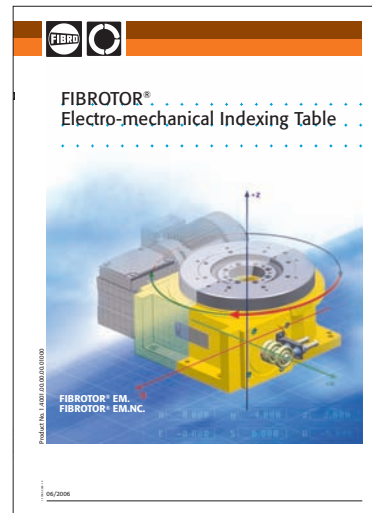
FIBROPLAN®

The well-graded range of **FIBROPLAN® NC-Rotary Tables** is characterised by the very extensive capabilities of the rotary table movement and angular positioning, both under full CNC-control. FIBROPLAN® NC-Rotary Tables are used on **machine tools** of diverse type and description, with the control of their rotational axis provided either by an additional control axis of the machine's CNC, or by a separate CNC-unit for the rotary table itself.

FIBROPLAN® Rotary Tables are the result of **progressive, non-compromising design concepts**, aimed at utmost versatility and operational rigidity. These attributes, together with drive – and control elements of outstanding quality, enable the user to achieve:

- unrestricted rotary positioning in freely selectable sequence and magnitude
- positioning accuracies from $\pm 3''$ (direct measuring system) to $\pm 10''$ (indirect measuring system)
- high precision in terms of radial and facial runout, due to selected, preloaded radial/axial combination bearings of the largest possible diameter

Range is available in any size from $\varnothing 160$ mm to $\varnothing 2400$ mm in horizontal and vertical execution



FIBROTOR®

The **FIBROTOR® EM./EM.NC. series of electromechanical indexing tables** is designed for tasks involving **rapid indexing operations** with the **optimized motion principle**.

Primary design considerations in addition to the achievement of excellent technical functionality were reliability and durability. Structural form, sizes and performance specifications are carefully incremented, so allowing the customer an optimum choice of equipment. The universal layout of the **FIBROTOR®** enables it to be used as an add-on or built-in rotary table in the horizontal or vertical attitude.

Quality of workmanship and use of long-term lubricants reduce maintenance work to a minimum.

High quality is also a significant feature of this series of rotary table.

Range is available in any size from $\varnothing 100$ to $\varnothing 1250$ mm.



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