

Product information PI 43.2

Disk-type tool turret

without tool drive

Series **0.5.440.xxx**

with tool drive

Series **0.5.433. / 436.xxx**

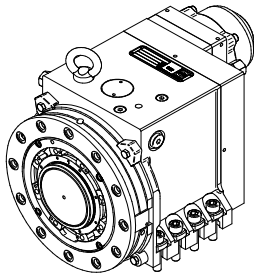
0.5.435.xxx

2012-05-07



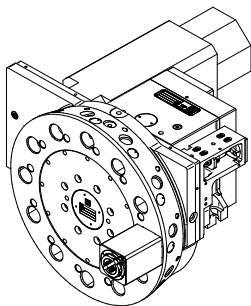
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PI 43.2 Disk-Type Tool Turret



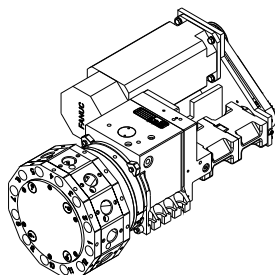
Series 0.5.440.xxx Series without Tool Drive

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Series 0.5.433.xxx/0.5.436.xxx Series with Axial Tool Drive

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You can request following projection instruction:

- PA 43.2 SAUTER EK 600. control unit
- PA 44.1 Other motors. Tool turret activation
- PA 44.2 Deltamotor control unit

NOTE:

The information contained in this Product Information is in conformity with knowledge at the point of printing. We reserve the right to perform modifications within the framework of continuous further development.

Disk-Type Tool Turret

Series 0.5.440.xxx without Tool Drive

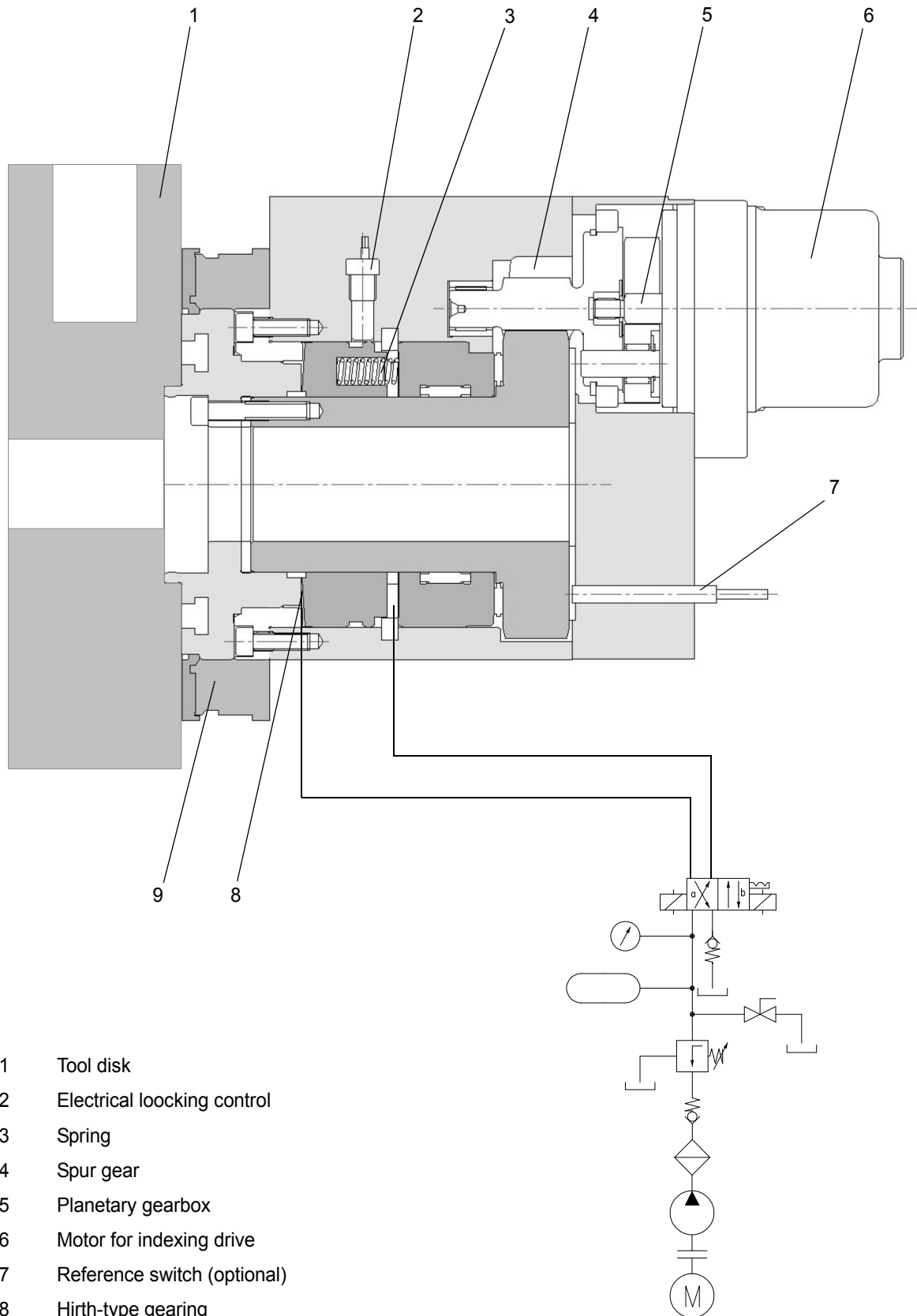
Description

These turrets are suitable for use on turning machines for forward and reverse machining. They are equipped with all of the features and functions of modern highperformance tool turrets. They are suitable for series manufacture due to their robust design and short switching times.

Turret range without tool drive	0.5.440.xxx
with axial tool drive	0.5.433.xxx, 0.5.436.xxx
with radial tool drive	0.5.435.xxx

Features

- Drive with controllable electric motor for very fast bidirectional swivel use of:
 - a plug & play SAUTER drive unit EK 600 with motor and converter
 - SAUTER drive with rotary encoder activation and customary control
 - or customary servo motors
- Short cycle times due to excellent turret control (in case of use SAUTER drive unit, for example with SAUTER drive unit EK 600)
- Reduced wiring requirement
- High degree of stability due to high locking forces
- Hydraulic locking with special triple generating crown gear (pat.)
- Not affected by collisions due to:
 - ↳ [Low kinetic energy of the drive, and](#)
 - ↳ [Fastening snap-ring groove for the tool disk](#)
- Directly controllable with machine controller (not apply to SAUTERdrive unit EK 600)
- Connection with centralised lubricating system to ensure extremely high service and usage life
- Can be installed in any position
- Options:
 - Air purge connection for turrets with radial tool drive
 - Block-shaped housing or with flange fitting for especially high degree of rigidity
 - Central rotary feed-through for example for fluid-actuated tools and for a highpressure cooling lubricant device.
 - Installation of transfer elements in the tool disk
 - Attachment of sensors for cutting force monitoring
 - Y-axis
 - and more



Technical Data

Series	
Disk-type tool turret 0.5.440.xxx	
Number of switching positions	
Admissible tangential load (turret locked) ¹⁾	kNm
Admissible mass moment of inertia of tools ¹⁾²⁾ with tool disk and holder	kgm ²
Admissible out of balance (load moment) due to tooling	Nm
Gear ratio swivel drive	i
Switching times³⁾	s
Rotate tool disk: ⁴⁾	
• incl. acceleration and braking per partial step 30°	s
• without acceleration and braking per additional partial step to n=4000	s
Turret unlock/lock -hydraulic	s
Adm. switching frequency ³⁾ (median switching angle $\varphi_m = 90^\circ$)	
Operating pressure	
Hydraulic $\pm 10\%$	bar
Cooling lubricant	
• Standard	bar
• Medium pressure valve	bar
• High-pressure cooling lubricant device	bar
Fluid absorption volume	
Turret unlock/lock	cm ³
Masse	
Turret (incl. drive motor) ⁵⁾	kg
Tool disk and tooling (max)	kg
Adm. ambient temperature	°C

- 1) Higher values on request
- 2) Switching times on request
- 3) Conditions:
 - Fluid supply sufficiently large
 - Turret up to operating temperature
 - Without controller-related non-productive time
 - Schaltzeiten für SAUTER-Motor
 - Further details see motor chart.
- 4) The swivel times are determined with an average load.
Further details on request..
- 5) At design standard housing
- 6) Ensure compliance with the required filter fineness for the tools used.
For example spindle heads with internal cooling lubricant supply.

Size																	
12			16			20			25			32			40		
8	12	16	8	12	16	8	12	16	8	12	16	8	12	16	8	12	16
0,8			1,8			3,6			7,2			12,5			25		
1,2			2,5			5,0			12			40			140		
16			32			63			125			200			320		
45			54			72			90			216			360		
0,10			0,12			0,15			0,19			0,31			0,49		
0,06			0,07			0,09			0,12			0,24			0,4		
0,11			0,12			0,13			0,2			0,5			0,8		
25			20			16			12			10			8		
50			50			50			50			50			50		
5 - 25 (filtering $\leq 100\mu\text{m}$) ⁶⁾ 5 - 50 (filtering $\leq 50\mu\text{m}$) ⁶⁾ 150 (filtering $\leq 25\mu\text{m}$) ⁶⁾																	
15			30			45			65			114			165		
38			50			70			110			220			auf		
40			80			160			250			400			Anfrage		
10 ... 40																	

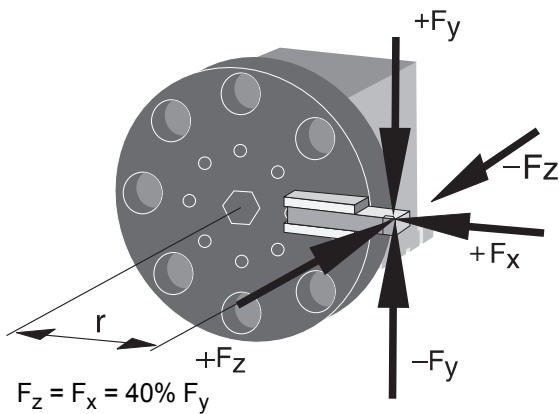
Recommended motors degree of protection to IP 67	J kgm ²	Adm. driving min ⁻¹	swiveling times for 30°-step without acceleration and braking s					
			Size of turret					
			12	16	20	25	32	40
SAUTER with EK 600 control	0,0003	4000	0,06	0,07	0,09	0,11	0,27	0,45
SAUTER 1.8.150.573 -133384 ¹⁾	0,0003	4500	0,05	0,06	0,08	0,10	0,24	0,40
Siemens 1FK7043 HD	0,0001	6000	0,04	0,05	0,06	0,08	0,18	0,3
Siemens 1FK7042	0,0003	4500	0,05	0,06	0,08	0,10	0,24	0,40
Fanuc α 2/5000 / β 2/5000	0,0003	4500	0,05	0,06	0,08	0,10	0,24	0,40
Delta with Delta-control	0,0003	4000	0,06	0,07	0,09	0,11	2)	2)

1) controlled via machine control system
2) currently not achieve

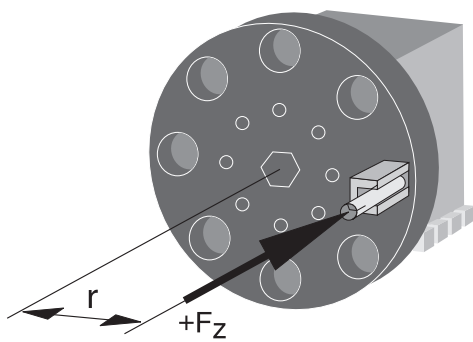
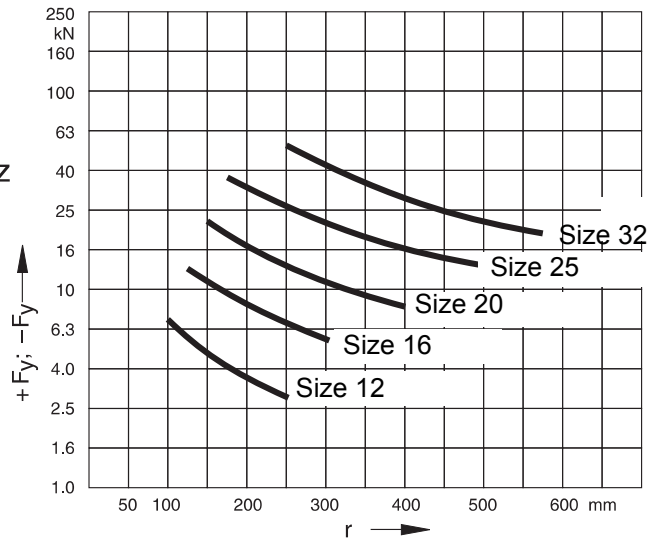
Admissible Loads

Note

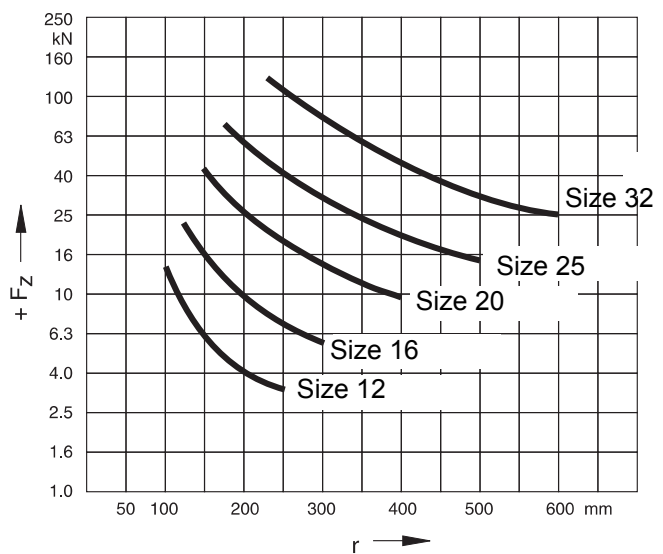
- The diagrams refer to static loads.
- In case of impact load (interrupted cutting), significantly lower values must be reckoned with.

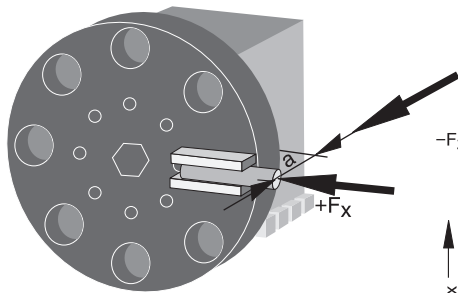


Combination force $\pm F_y$ ($+F_x, F_z$)
Type Turn- forward- and reverse machining



Advance force $+F_z$
(drilling forward and backward)

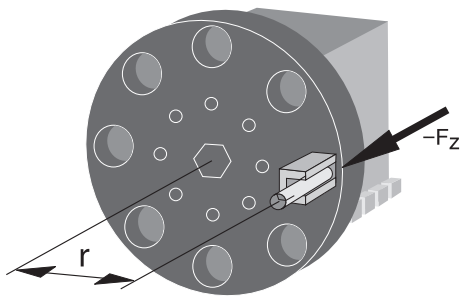
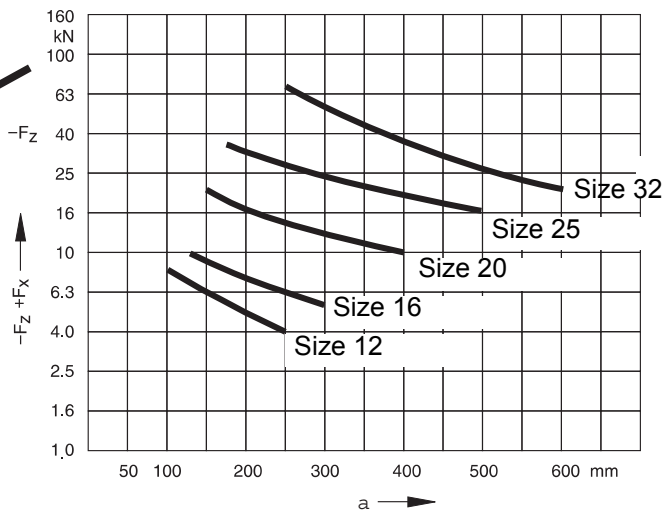




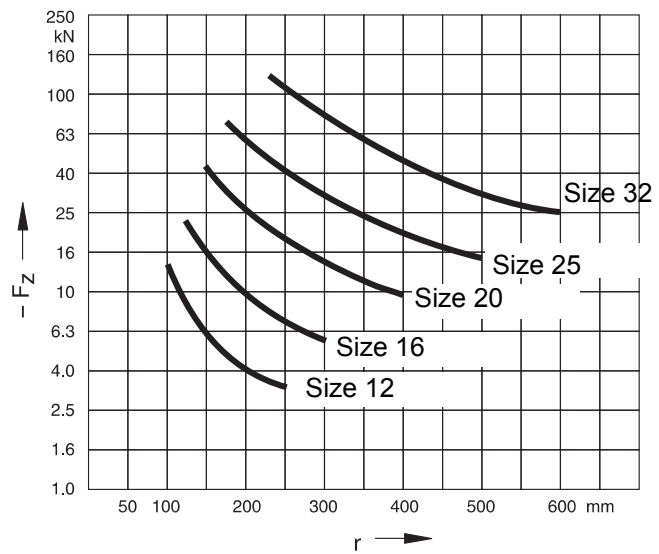
$-F_z = F_x = 40\% F_y$

Advance force $-F_z$
(drilling forward and
shunt load $+F_x$)

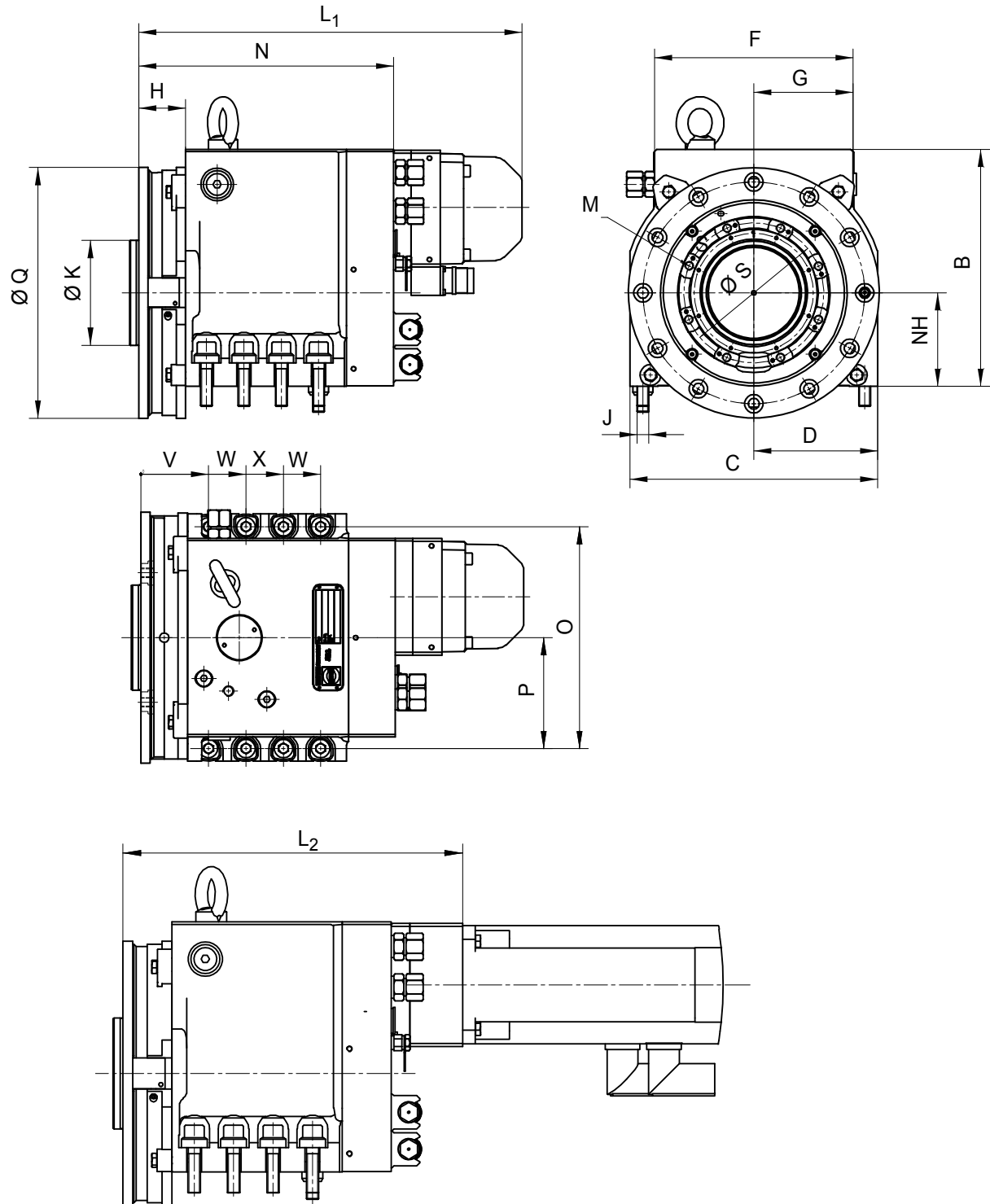
leading edge is the basis for dimension a



Advance force $-F_z$
(drilling forward)
(Only with L- and block-shape)



Dimension Foot shape (Standard)

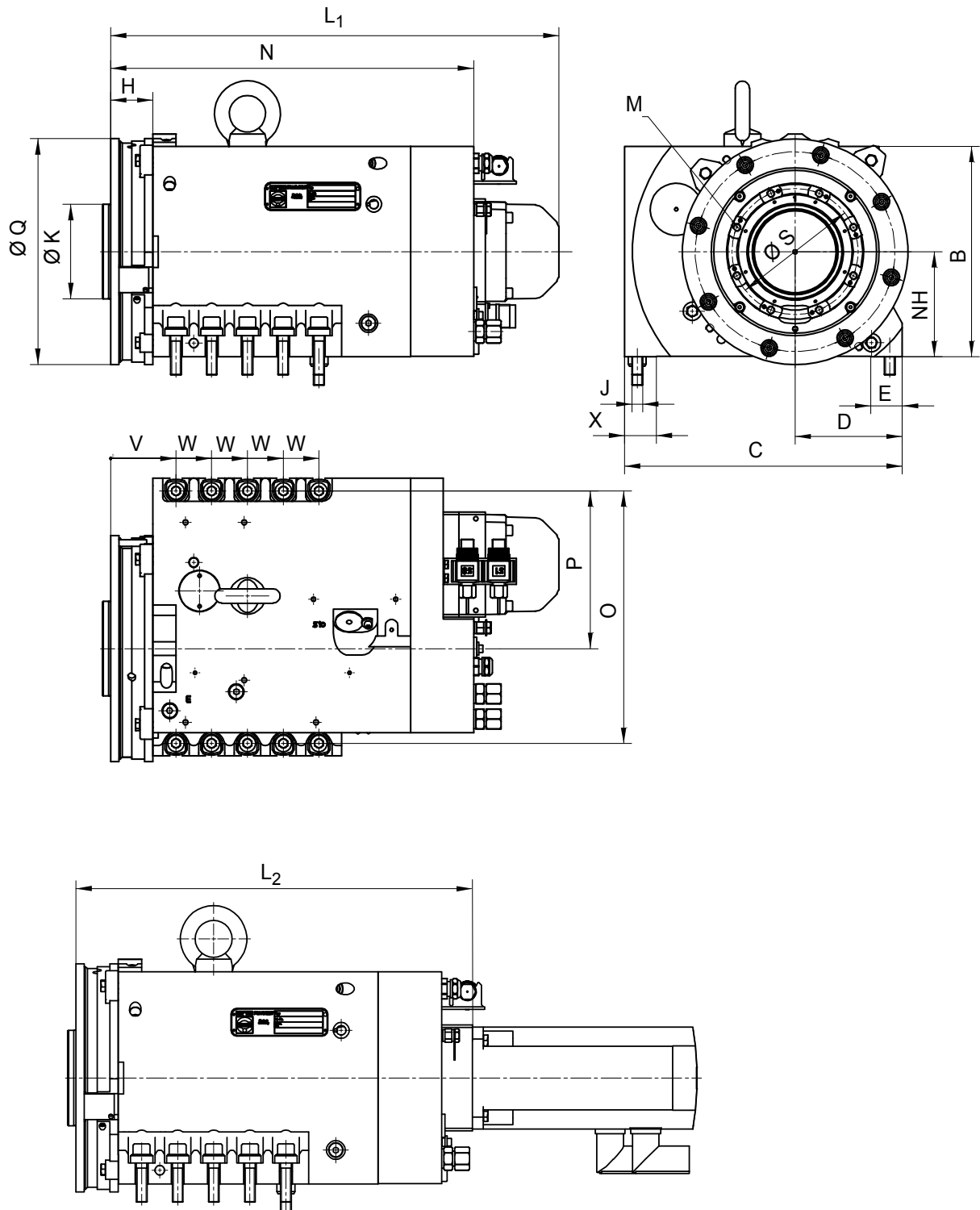


Series		Size				
Disk-type tool turret 0.5.440.xxx		12	16	20	25	32
NH		63	80	100	125	160
B		174	203	236	279	344
C		185	212	250	316	396
D		85	106	125	158	198
F		145	170	200	250	316
G		80	85	100	125	158
H		31	40	41	52	62
J		M8	M10	M12	M16	M20
Ø K		70	90	110	120	150
L						
SAUTER-Motor with control unit EK 600	L ₁	310	328	346	392	562
SAUTER-Motor 1.8.150.573-133384	L ₁	338	356	374	420	590
Delta-Motor with Delta control unit	L ₁	394	412	430	476	646
Siemens 1 FK7 43/42	L ₂	258	276	294	340	510
Fanuc α2 / β2	L ₂	243	261	279	325	495
M		8 x M8	8 x M8	11 x M10	11 x M12	15 x M12
N		216	234	252	298	429
O		165	190	220	280	352
P		75	95	110	140	176
Ø Q		175	215	255	318	396
Ø S		90	120	145	182	220
V		50	58	66	82	96
W		30	32	30	44	48
X		—	—	40	43	56

Dimension block shape (reinforced version / NH standard 1)

Note

- with housing compatible with series 0.5.450.xxx

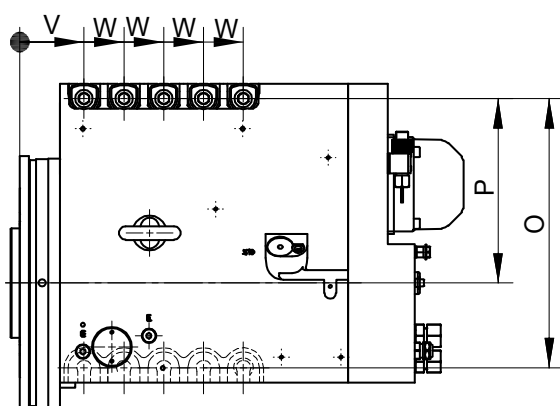
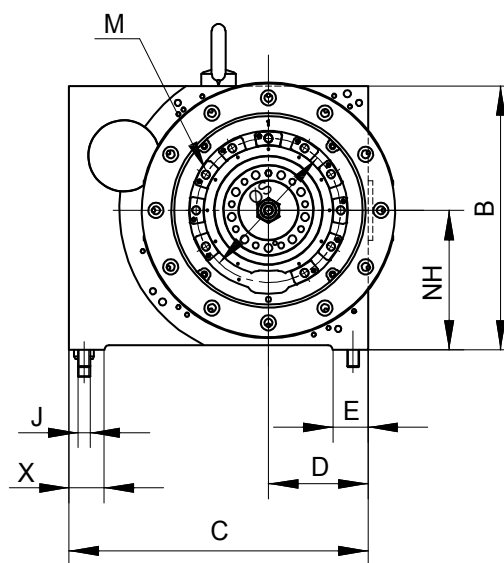
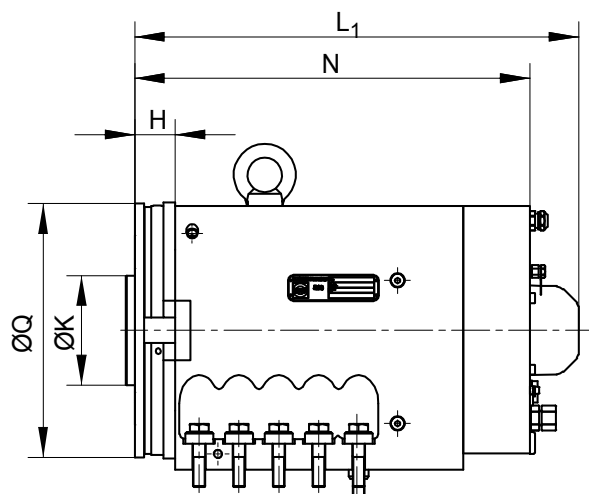


Series		Size				
Disk-type tool turret 0.5.440.xxx - block shape (Standard 1)		12	16	20	25	32
NH			100	125	150	200
B			200	236	300	400
C			264	250	406	520
D			102	125	158	198
E			26	35	45	48
H			40	41	52	62
J			M10	M12	M16	M20
Ø K			90	110	120	150
L						
SAUTER-Motor with control unit 600	L ₁		426	446	492	638
SAUTER-Motor 1.8.150.573-133384	L ₁		454	474	520	666
Delta-Motor with Delta control unit	L ₁		510	530	576	722
Siemens 1 FK7 43/42	L ₂		347	394	440	586
Fanuc α2 / β2	L ₂		359	379	425	571
M			8 x M8	11 x M10	11 x M12	15 x M12
N			234	252	298	
O			240	295	370	476
P			150	185	230	300
Ø Q			160	255	318	396
Ø S			120	145	182	220
V			62	65	78	96
W			34	40	42	52
X			34	35	45	48

Dimension block shape (reinforced version / NH standards 2)

Hinweis

- with housing compatible with series 0.5.450.xxx

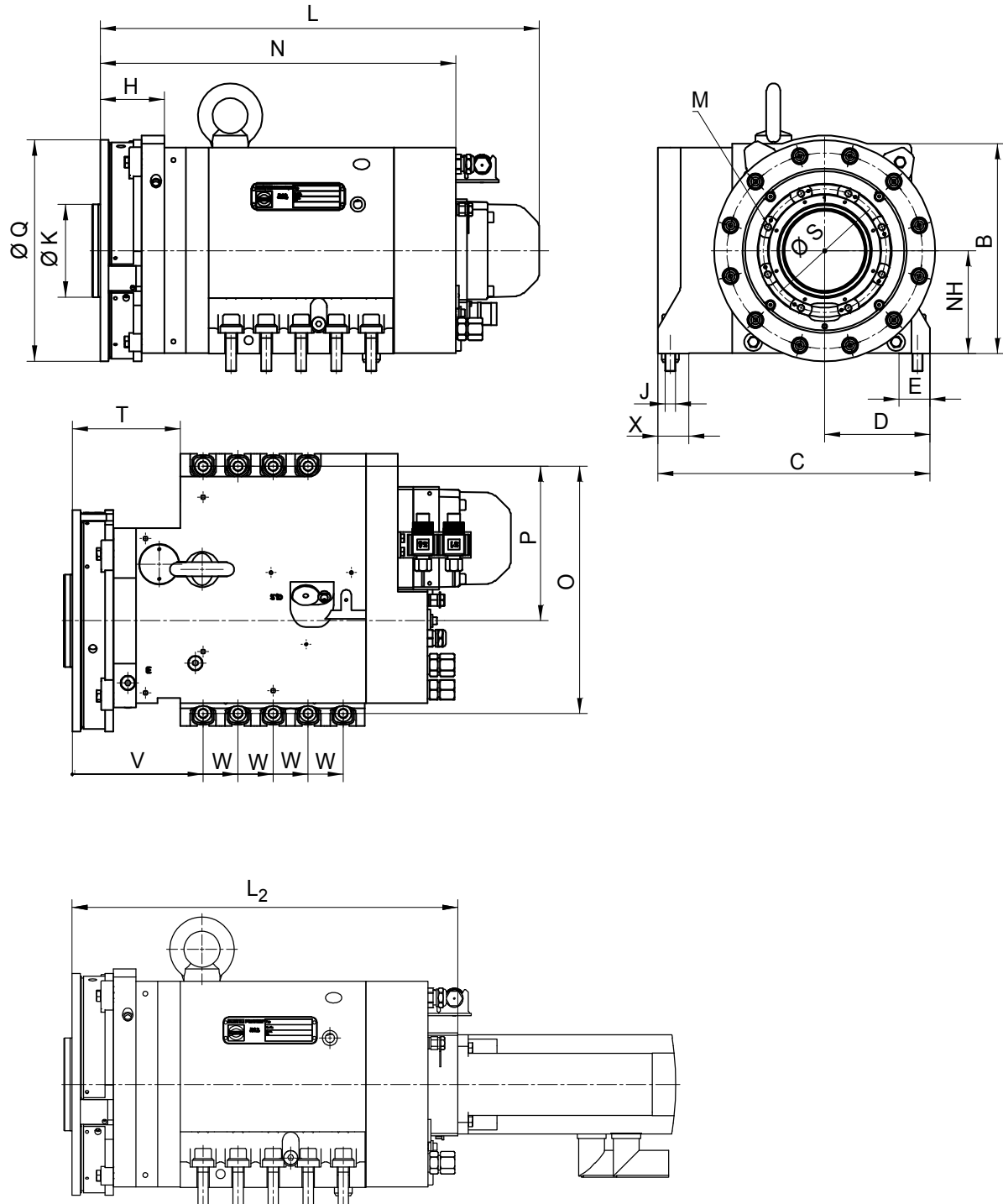


Series		Size			
Disk-typ tool turret 0.5.440.xxx - block shape (standard 2)		12	16	20	25
NH		90	115	140	150
B		170	219	265	300
C		198	244	300	406
D		68	82	100	158
E		20	26	35	45
H		32	40	41	52
J		M8	M10	M12	M16
Ø K		70	90	110	120
L					
SAUTER-Motor with control unit EK 600	L ₁	410	426	446	492
SAUTER-Motor 1.8.150.573-133384	L ₁	438	454	474	520
Delta-Motor with Delta control unit	L ₁	494	510	530	576
Siemens 1 FK7 43/42	L ₂	358	347	394	440
Fanuc α2 / β2	L ₂	343	359	379	425
M		8 x M8	8 x M8	11 x M10	11 x M12
N		216	234	252	298
O		178	220	270	370
P		120	150	185	230
Ø Q		175	160	255	318
Ø S		90	120	145	182
V		50	62	65	78
W		28	34	40	42
X		20	34	35	45

Dimension Lshape (NH standard 1)

Note

- with housing compatible with series 0.5.450.xxx

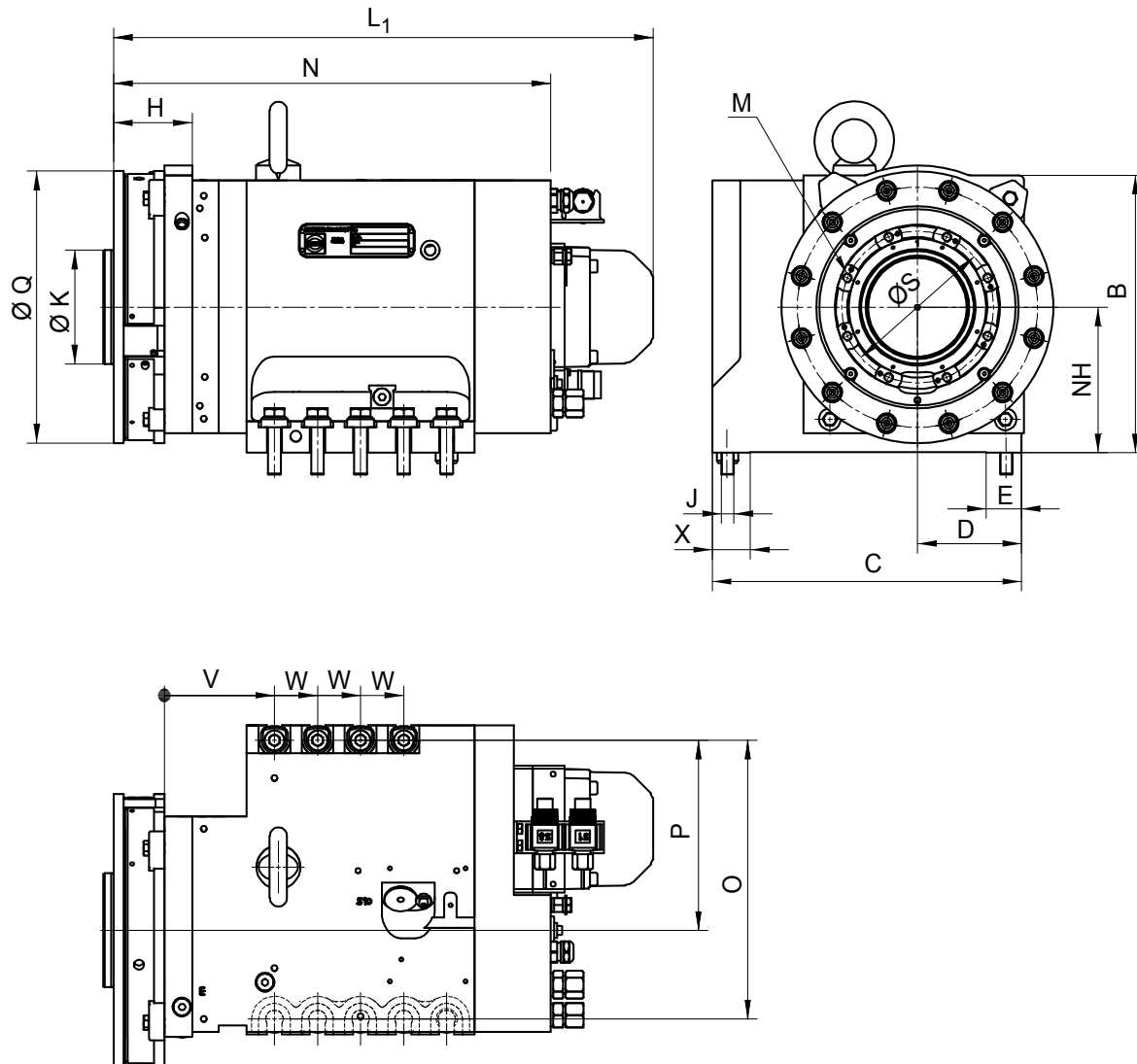


eries		Baugröße				
Disk-type tool turret 0.5.440.xxx - L-Form (Standard 1)		12	16	20	25	32
NH			100	125	150	200
B			200	236	300	400
C			264	250	406	520
D			102	125	158	198
E			26	35	45	48
H			40	41	52	62
J			M10	M12	M16	M20
K			90	110	120	150
L						
SAUTER-Motor with control unit EK 600	L ₁		426	446	492	638
SAUTER-Motor 1.8.150.573-133384	L ₁		454	474	520	666
Delta-Motor with Delta control unit	L ₁		375	395	441	587
Siemens 1 FK7 43/42	L ₂		374	394	440	586
Fanuc $\alpha 2 / \beta 2$	L ₂		359	379	425	571
M			8 x M8	11 x M10	11 x M12	15 x M12
N			234	252	298	429
O			240	295	370	476
P			150	185	230	300
Ø Q			160	255	318	396
Ø S			120	145	182	220
T			90	120	150	200
V			62	144	176	234
W			34	40	42	52
X			34	35	45	48

Dimension L shape (NH standard 2)

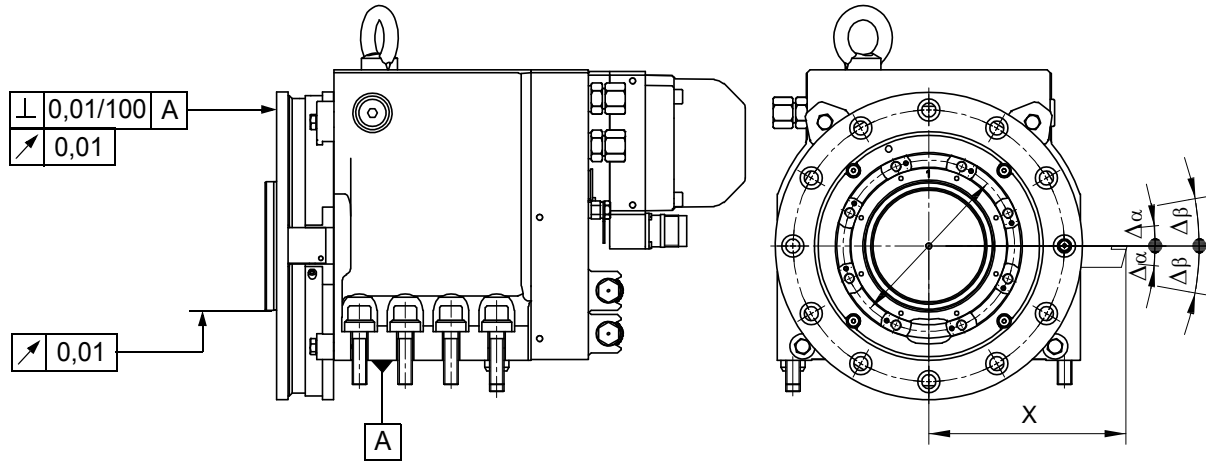
Note

- with housing compatible with series 0.5.450.xxx



Series		Size			
Disk-type tool turret 0.5.440.xxx - L-Form (standard 2)		12	16	20	25
NH		90	115	140	180
B		170	219	265	330
C		198	244	300	373
D		68	82	100	125
E		20	26	35	45
H		32	40	41	52
J		M8	M10	M12	M16
K		70	90	110	120
L					
SAUTER-Motor with control unit EK 600	L ₁	410	426	446	492
SAUTER-Motor 1.8.150.573-133384	L ₁	438	454	474	520
Delta-Motor with Delta control uni	L ₁	494	375	395	441
Siemens 1 FK7 43/42	L ₂	358	374	394	440
Fanuc $\alpha 2 / \beta 2$	L ₂	343	359	379	425
M		8 x M8	8 x M8	11 x M10	11 x M12
N		216	234	252	298
O		178	220	270	337
P		120	150	185	230
Ø Q		120	150	255	318
Ø S		175	160	145	182
T		90	120	120	150
V		50	62	144	176
W		28	34	40	42
X		20	34	35	45

Precision



Repeating accuracy
(Multiple move to a switching position from the same direction)

$$\Delta\alpha = \pm 1,6'' \equiv \pm 0,8 \times \frac{X[mm]}{100[mm]} [\mu m]$$

Indexing precision
(Multiple move to a switching position from different direction)

$$\Delta\beta = \pm 4'' \equiv \pm 2 \times \frac{X[mm]}{100[mm]} [\mu m]$$

Fluid Rotary Feed-Through

All turrets are deliverable with central fluid rotary feed-through:

- „uncontrolled“ version – fluid supply in **all** switching positions
e.g. for sealing air, for gripper actuation, and similar actions
- „controlled“ version – fluid supply in **one** switching positions
e.g. for KSS, for automatic tool changes, and similar actions

A maximum of three supply lines are routed through the centre of the turret.
Operating pressure $P_{adm} = 100$ bar (standard).

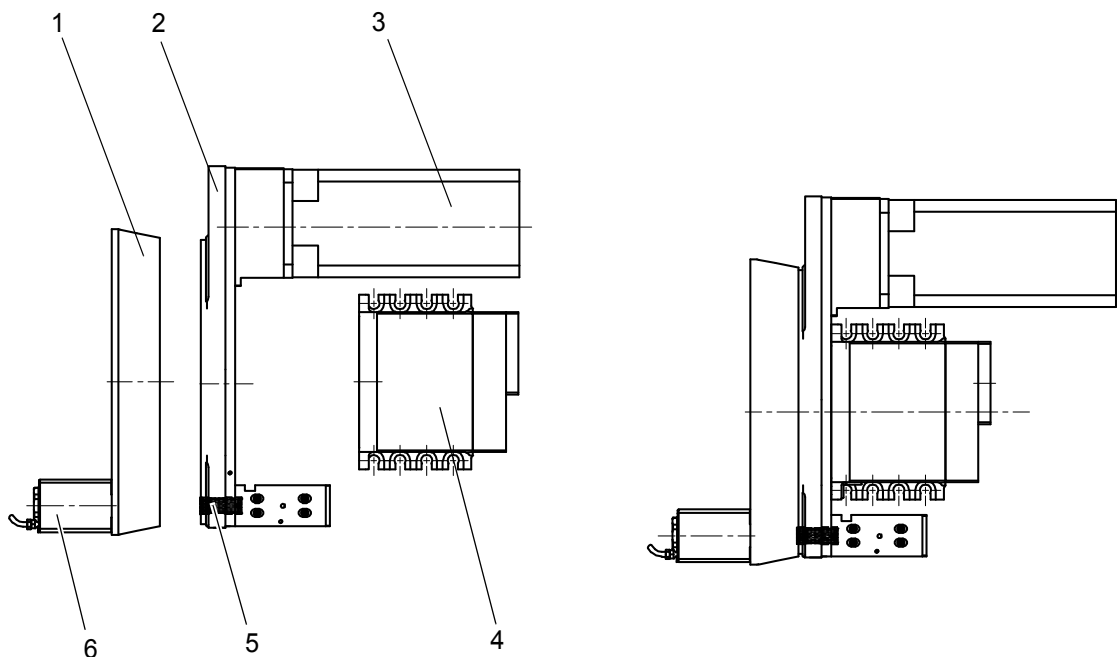
Series 0.5.433.xxx / 0.5.436.xxx
with Axial Tool Drive (only available with foot-shape housing)

Description

These turrets are of modular construction and consist of a basic turret (4) of the 0.5.440.xxx series and a decentralised tool drive (2) mounted instead of the cooling lubricant ring. The tool drive has been designed for individually switchable spindle heads.

The tool drive motor (3) drives the sliding coupling (5) via the spur gear incorporated in the gearbox casing. The tool in the working position is switched on by means of the sliding coupling.

Coupling process with	Turret series	Suitable spindle heads	
		Spindle-locking system	SAUTER-spindle heads typ
Searching	0.5.433.xxx	nein	0.5.921.xxx
without searching (with spindle positioning)	0.5.436.xxx	ja	0.5.941.xxx

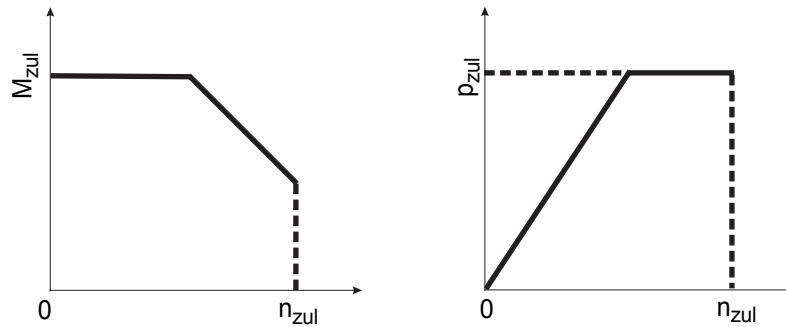


- 1 Tool disk
- 2 Tool drive
- 3 Tool drive motor
- 4 Base turret
- 5 Sliding coupling
- 6 Spindelkopf / pinion shaft
- 7 Spindle head

Admissible duty cycle (DC)

Tool drive

Performance Diagram



Admissible duty cycle of the tool drive during short-time operation (reference values)

The actual efficiency (DC) also depends on where the turret is installed and on the operating conditions!

Admissible duty cycle [DC] (5 min)		100%	80%	60%	40%	25%
Admissible drive rating	$\frac{P_c}{P_{zul}}$					
and		25%	40%	50%	75%	100%
admissible relative rpm	$\frac{n_c}{n_{zul}}$					

P_c = Required cutting performance [kW]
 n_c = Required cutting rpm [min⁻¹]
 P_{zul} = Admissible drive rating [kW]
 n_{zul} = Admissible rpm [min⁻¹]

Example calculation:

Witch speed n_c and witch power P_c with 40% DC are supported on a tool drive, size 20?
 According to the table on pages 20/21 / 23, the following values are valid for disk-type tool turrets, size 20:
 $P_{adm} = 8 \text{ kW}$, $n_{adm} = 4000 \text{ min}^{-1}$

Values are valid for 40% DC (5min) according to the table on this page:

$$\frac{n_c}{n_{zul}} = 75\% \quad \text{und} \quad \frac{P_c}{P_{zul}} = 75\%$$

$$P_c = P_{adm} \times \frac{P_c}{P_{zul}} = 8 \text{ kW} \times 75\% = 6 \text{ kW}$$

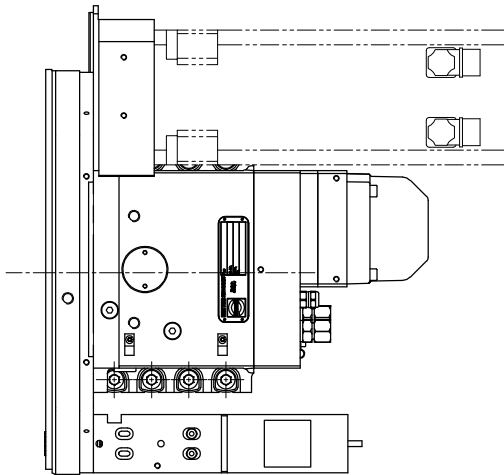
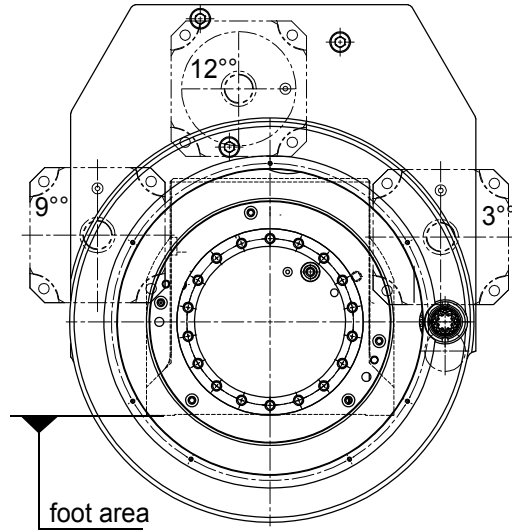
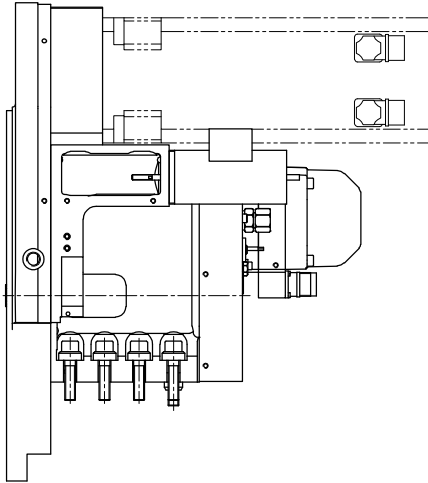
and

$$n_c = n_{adm} \times \frac{n_c}{n_{zul}} = 4000 \text{ min}^{-1} \times 75\% = 3000 \text{ min}^{-1}$$

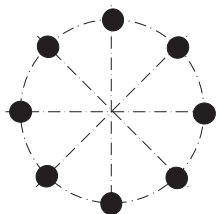
In this example the tool drive can be operated with $P_c = 6 \text{ kW}$ and $n_c = 3000 \text{ min}^{-1}$ for 2 minutes and then it must rest for 3 minutes.

Motor Arrangement

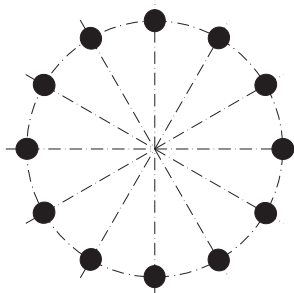
Motor arrangement possible at
3 o'clock, 9 o'clock oder 12 o'clock positions



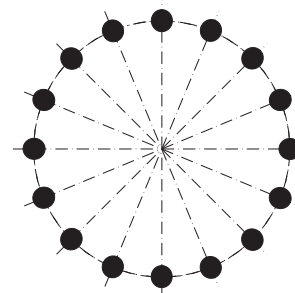
Tool Arrangement



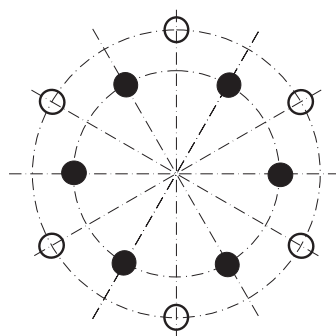
8 Pos. - 1 graduated circle



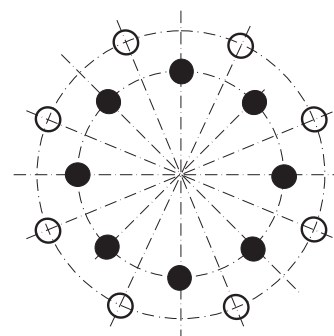
12 Pos. - 1 graduated circle



16 Pos. - 1 graduated circle



12 Pos. - 2 graduated circles



16 Pos. - 2 graduated circles

- Position with tool drive
- Position w/o tool drive

Series 0.5.433.1xx
with axial tool drive

Configurations

Configurations on **grey** background are preferably deliverable!
Further configurations – e.g. the version "left" – on request.

Turret Size	Working position		Motor-Position	Coupling profile	Tool-holder receptacle Ø DIN 69880	8 fold	12 fold
	x	y					
12	+98,54	-17	9°	DIN 5480 W10 x 0,8 M _{zul} = 12,5Nm	20		x
	+100	0	9°		20		x
	-100	0	3°		20		x
	+98,54	-17	9°	DIN 5482 B15 x12 M _{zul} = 12,5Nm	30	x	
16	+117,4	-25	12°	DIN 5482 B15 x12 M _{zul} = 20Nm	30		x
	+120	0	12°		30	x	x
	+120	0	9°		30	x	x
	-120	0	12°		30	x	x
	+150	0	9°		30		x
	+150	0	12°		30		x
20	+155	0	9°	DIN 5482 B17 x14 M _{zul} = 32Nm	40	x	x
	+155	0	12°		40	x	x
	-155	0	12°		40	x	x
	-150	0	12°		40	x	
	+170	0	9°		40		x
	+185	0	9°		40		x
25	-180	0	12°	DIN 5482 B20 x17 M _{zul} = 63	50	x	
	+235	-70	9°		50		x
	+200	0	9°		50		x
	+200	-20	12°		50		x
	+210	0	12°		50		x
32				DIN 5482			

Performance Data for the Tool Coupling

The gearbox is designed for the performance data indicated below for the tool coupling.
The actually available performance data depend on:

- the drive motor used
- the rpm on the tool coupling
- the duty cycle
- the cutting performance

The values given in the following examples of cutting capacity can be taken as reliable estimates:

Series		
Disk-type tool 0.5.433.1xx		
Gearbox performance data		
• Adm. drive rating ¹⁾	P_{adm}	kNm
• Adm. torque ²⁾	M_{adm}	kgm ²
• Adm. rpm ³⁾	n_{adm}	rpm
Recommended drive ⁴⁾ degree of protection to IP 67		
Siemens servo motor Typ 1 FT 6		
Gear ratio ⁵⁾ motor rpm/tool coupling		$i=n_{mot}/n_2$
Fanuc-Servo motor		
Fanuc-single motor Typ Alpha		
Gear ratio motor rpm/tool coupling		$i=n_{mot}/n_2$

- 1) The values apply for short-time operation.
- 2) Torque limitation on the motor converter required.
The torque values apply to smooth machining (such as drilling, thread cutting).
In case of machining processes subject to shock (e.g. milling), the P_c cutting performance must be reduced by 50 % or more without reducing the required speed n_c .
- 3) Higher values on request
- 4) Spindle motor
- 5) Further motors on request

Size								
10	12	16	20	25			32	40
				D30	D40	D50		
4	5	6	8	10	10	10	12,5	15
8	12,5	20	32	32	63	63	130	160
6000	6000	5000	4000	4000			3200	2500
..044..AK..	..062..AK..	..064..AK..	..082..AK..	..086..AK..		..108..AK..	..108..AK..	
1,0	1,5 1,0	1,5 1,0	1,32 1,0	1,63 1,0		1,24 1,0	1,3 1,0	
on request	8/4000 is	12/4000 is	22/4000 is	40/4000 is		on request	on request	
α 0,5	α 1	α 1,5	α 2	α 3		α 8	α 8	
1,0	1,0	1,0	1,0	2,0		1,53	1,53	

Size 0.5.433/436.xxx
with reinforced tool drive

Configuration

0.5.433.xxx - with reinforced tool drive

Configurations on **grey** background are preferably deliverable!
Further configurations – e.g. the version "left" – on request.

Turret Size	Working position x / y	Motor-position	Coupling profile Coupling process with search run	Tool holder receptacle Ø DIN 69880	Possible tool arrangement
12	+100 / 0	9°	DIN 5480 W10 x 0,8 M _{zul} = 12,5Nm	20	12 - 2
	+120 / 0	9°		20	12 - 1
16	+120 / 0	9°	DIN 5482 B15 x 12 M _{zul} = 32Nm	30	12 - 2
	+135 / 0	12°		30	12 - 2
	+150 / 0	9°		30	12 - 1
20	+155 / 0	9°	DIN 5482 B17 x 14 M _{zul} = 63Nm	40	12 - 2
	+170 / 0	9°		40	12 - 2
	+185 / 0	9°		40	12 - 1
	+195 / 0	12°		40	12 - 1
25	+198 / -70	9°	DIN 5482 B20 x 17 M _{zul} = 100Nm	50	12 - 2
	+210 / 0	9°		50	12 - 1
32					

0.5.436.xxx - reinforced tool drive

Turret Size	Working position x / y	Motor-position	Coupling profile Coupling process with spindle positioning	Tool holder receptacle Ø DIN 69880	Possible tool arrangement
12	+100 / 0	9°	DIN 5480 W14 x 0,8 M _{zul} = 20Nm	25	12 - 2
	+120 / 0	9°		25	12 - 1
	+135 / 0	9°	DIN 5480 W16 x 0,8 M _{zul} = 20Nm	30	12 - 1
16	+120 / 0	9°	DIN 5480 W16 x 0,8 M _{zul} = 32Nm	30	12 - 2
	+135 / 0	12°		30	12 - 2
	+150 / 0	9°		30	12 - 1
20	+155 / 0	9°	DIN 5480 W20 x 0,8 M _{zul} = 63Nm	40	12 - 2
	+170 / 0	9°		40	12 - 2
	+185 / 0	9°		40	12 - 1
	+195 / 0	12°		40	12 - 1
25	+198 / -70	9°	DIN 5480 W24 x 1,25 M _{zul} = 100Nm	50	12 - 2
	+210 / 0	9°		50	12 - 1
32					

**Performance Data for the Tool Coupling
with reinforced tool drive**

The gearbox is designed for the performance data indicated below for the tool coupling.
The actually available performance data depend on:

- the drive motor used
- the rpm on the tool coupling
- the duty cycle
- the cutting performance

The values given in the following examples of cutting efficiency can be taken as **reliable estimates**:

Series	Size											
Disk-type tool turret 0.5.433.xxx / 436.xxx	12		16		20		25		32		40	
Gearbox performance data												
Adm. drive rating ¹⁾ P _{zu} kW	6		8		10		12,5		16		16	
Adm. torque ²⁾ M _z Nm	20		32		63		100		160		160	
Adm. rpm ¹⁾³⁾ n _{zu} min ⁻¹	6000		5000		4000		4000		3200		3200	
Gear ratio ⁴⁾ i = n ₁ / n ₂	~1,5 ⁴⁾	1,0	1,0		~1,5 ⁴⁾	1,0	~1,5 ⁴⁾	1,0	~1,5 ⁴⁾	1,0	~1,5 ⁴⁾	1,0
Recommended drive motors degree of protection to IP 67												
Siemens servo motor Typ 1 FT 6..	..062 6AK	..064 6AK	..084 - 8AK		..086 - 8AK		..102 8AH	..105 8AF	1PH7 107	..108 8AF	1PH7 107	..108 8AF
Fanuc servo motor	8/4000 is		12/4000 is		22/4000 is		40/4000 is		on request		on request	
Fanuc-Spindle motor Typ Alpha..	α 1,5		α 2		α 3		α 6		α 8		α 8	

- 1) The values are reference values for short-term operation. Higher rpm generate more heat and noise.
- 2) Torque limitation on the motor converter required! The torque values apply to smooth machining (such as drilling, thread cutting). In the case of machining with severe shock loads (e.g. face milling and similar operations) it is necessary to reduce the motor drive torque by 50% or more!
- 3) Higher rpm on request
- 4) Option. i = 1,5 only on turret series 0.5.433.xxx

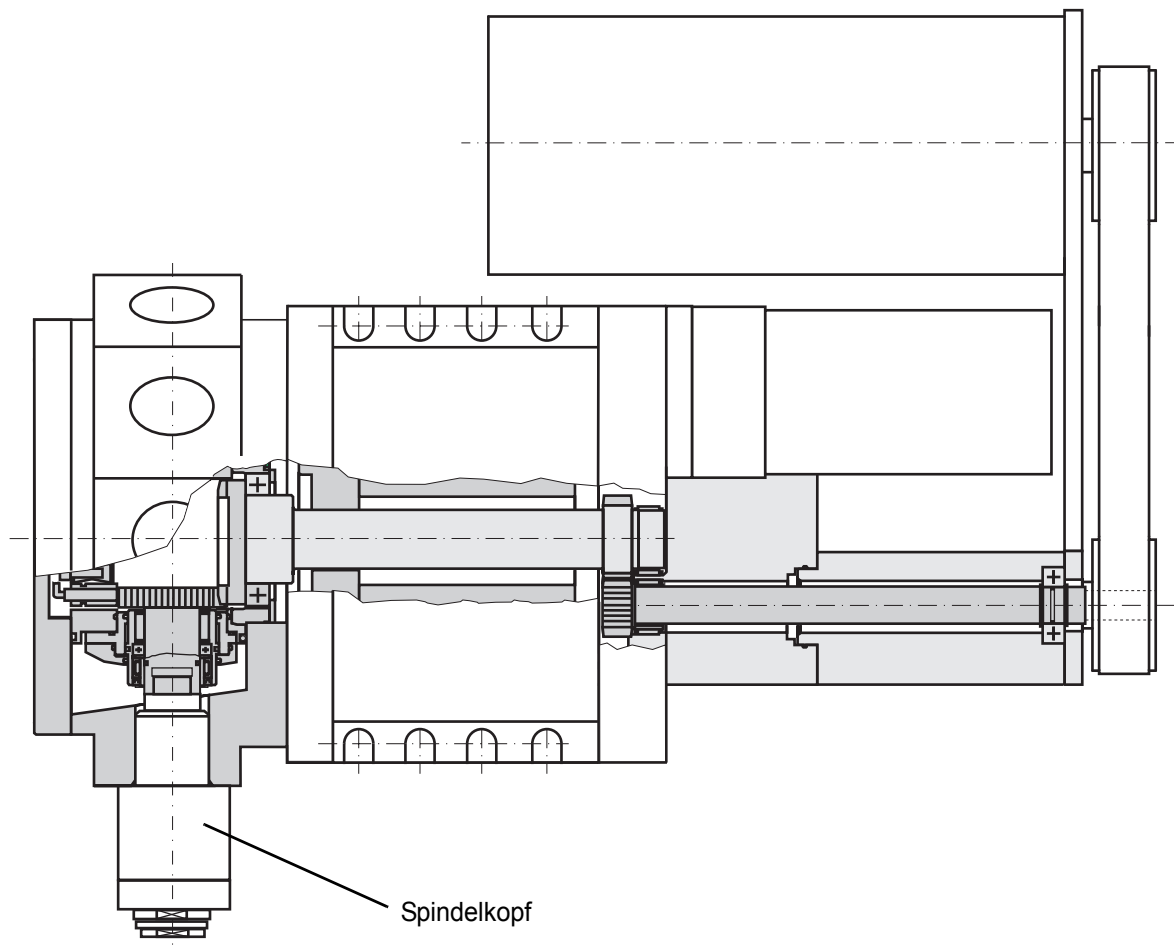
Series 0.5.435.xxx
with radial tool drive (only available with foot-shape housing)

Description

These turrets consist of the following:

- Basic turret series 0.5.440.xxx and
- Tool drive **central**
for individually switchable **radial** spindle heads
for **forward** and **reverse** machining.

This requires spindle heads with spindle locking system -SAUTER spindle heads series 0.5.941.xxx-



The tool drive motor drives - either directly or via a belt drive - the drive shaft, which is located centrally within the turret in a hollow shaft. The tool in the working position is connected inside the gear head via an angular gear and a fluid-switched coupling.

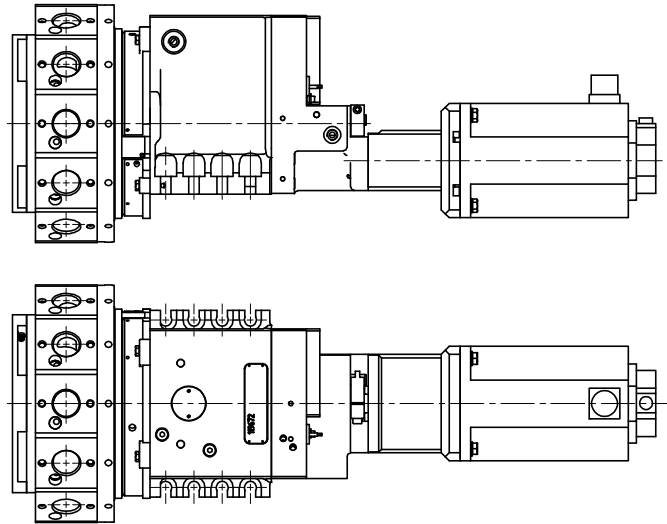
Coupling and decoupling of the spindle head located in the working position is executed after each positioning of the tool drive motor "C not tooth on tooth situation, shortest switching time!

In these turret systems, the tool disk is an integrated part of the turret.

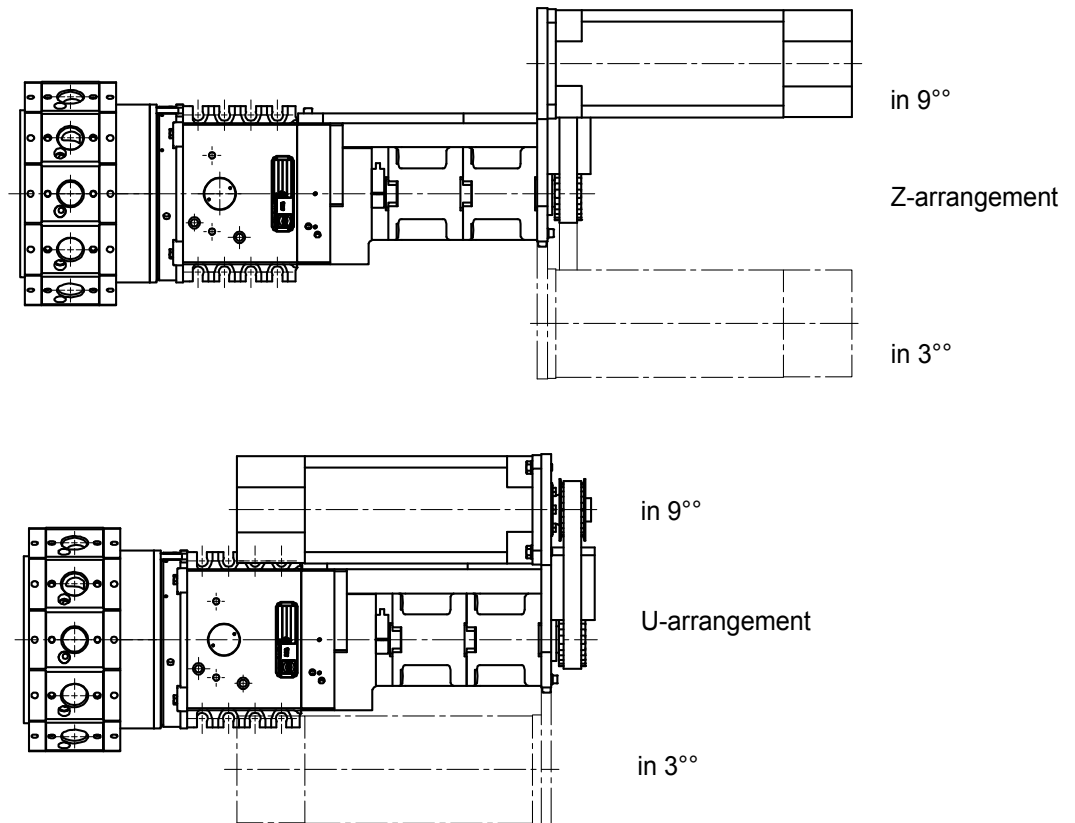
Motor Arrangement

The tool drive motor can be installed directly on the turret or with a belt drive, depending on the application specifications.

Motor-arrangement -direct-



Motor-arrangement with deflection



Performance Data for the Tool Coupling

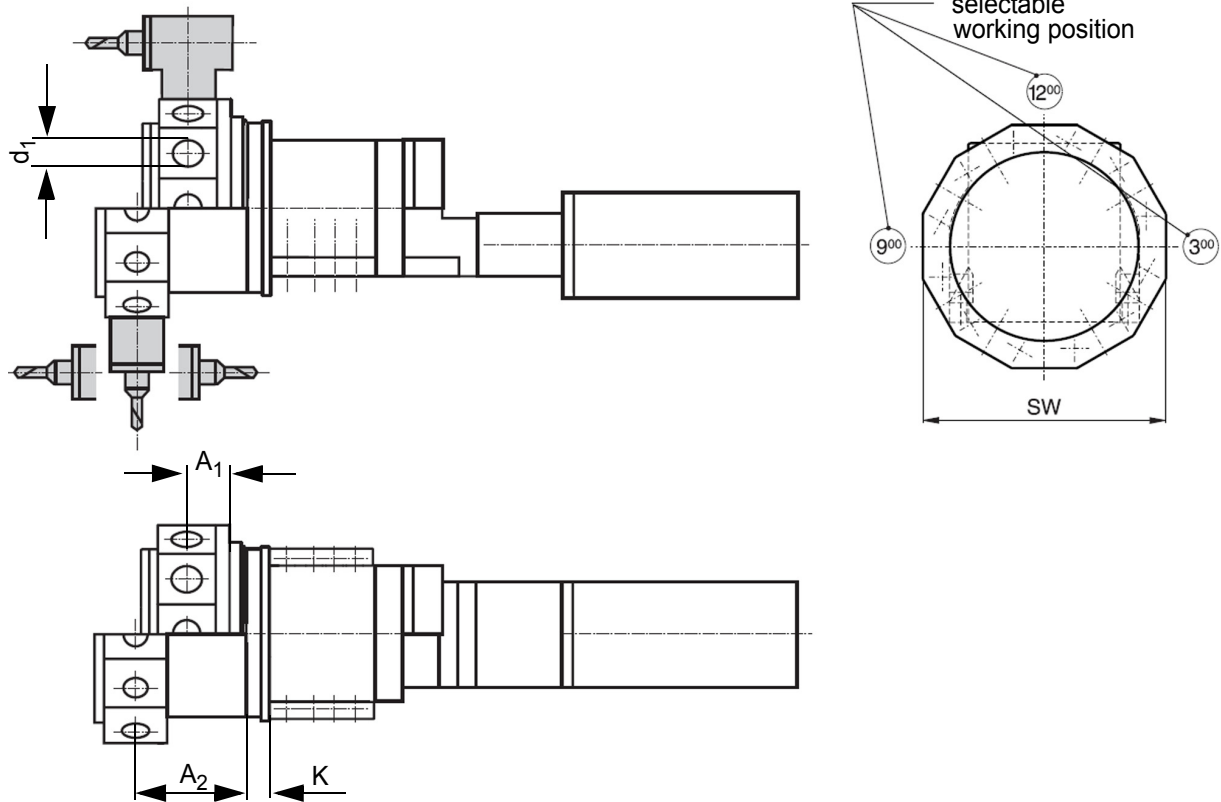
The gearbox is designed for the performance data indicated below for the tool coupling.
The actually available performance data depend on the drive motor used (see below).

Series	Size			
Disk-type tool turret 0.5.435.xxx	12	16	20	25
Gearbox performance data				
Adm. drive rating ¹⁾ P _{zul} kW	6	8	10	12,5
Adm. torque ²⁾ M _{zul} Nm	20	32	63	100
Adm. rpm ¹⁾³⁾ n _{zul} min ⁻¹	6000	5000	4000	4000
Gear ratio i=n ₁ / n ₂	1,0	1,0	1,0	1,0
Recommended drive motors degree of protection to IP 67				
Siemens servo motor Typ 1 FT 6..	..064 - 1AK	..084 - 1AK	..086 - 1AH	..105 - 1AF
Fanuc servo motor	8/4000 is	12/4000 is	22/4000 is	40/4000 is
Fanuc servo motor Typ 1 FT 6..	α 1,5	α 2	α 3	α 6

- 1) The values are reference values for short-term operation. Higher rpm generate more heat and noise, especially when the belt drive is used!
- 2) Torque limitation at motor converter required! The torque values apply to smooth-machining (such as thread drilling). In the case of machining with severe shock loads (e.g. face milling and similar operations) it is necessary to reduce the motor drive torque by 50% or more.
- 3) Higher rpm on request

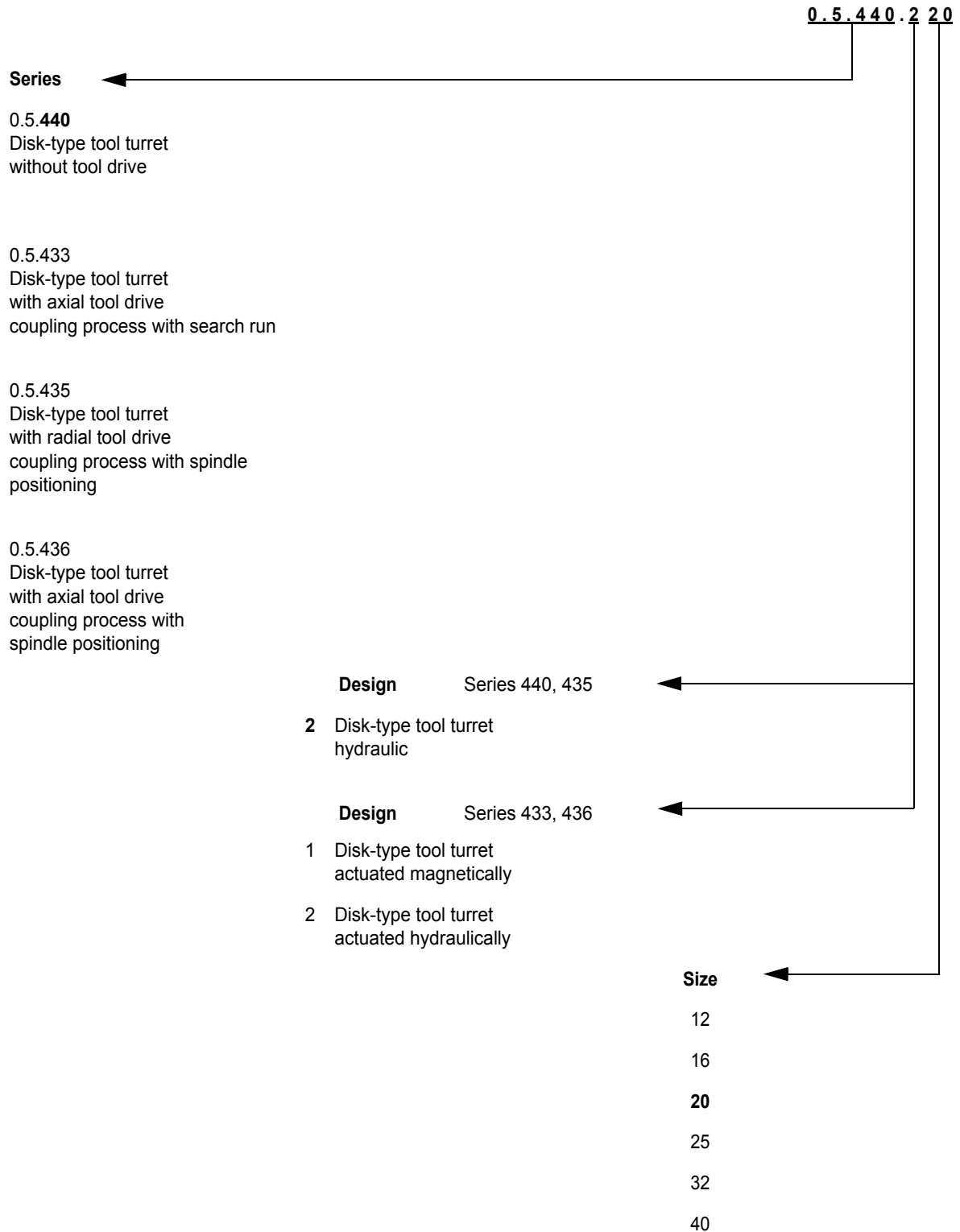
Note: See page 22 for how to define the duty cycle (DC).

Dimensions



Series			Size			
Disk-type tool turret 0.5.435.xxx			12	16	20	25
Coupling profile DIN 5480			14 x 0,8	16 x 0,8	20 x 0,8	24 x 1,25
Distance	A ₁	(standard)	48	55	80	100
	A ₂		80	96	159	198
	K		32	40	41	52
Tool holder receptacle system cylinder shaft DIN 69880						
	d ₁		25	30	40	50
	SW ₁	-standard	220	270	320	380
	SW ₂	(optional)	240	—	360	410
	SW ₃	(optional)	300	340	380	—
Tool system Coromant Capto (optional)						
	NG		C3	C4	C5	C5
	SW		280	340	380	420

Type Key



Ordering Details



++49 (0) 7123-926-190



++49 (0) 7123-926-0



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Postfach 1551
D-72545 Metzingen
Germany

Firma: _____

Straße: _____

PLZ, Ort: _____

Name: _____

Tel.: _____

Fax: _____

SAUTER Disk-type tool turret 0.5.440.xxx / 0.5.433./436.xxx / 0.5.435.xxx		
Ordering details	Possible configurations	Your selection
Basis turret Size Number of switching positions Turret drive motor Referenzschalter Installation position	12 / 16 / 20 / 25 / 32 / 40 8 / 12 / 16 Siemens / Fanuc / ... yes / no	
Axial tool drive Working position X / Y Motor position Motor used Gear ratio Coupling profile	s. page 24 3° / 9° / 12° s. page 26/27 1,0 / 1,5	
Radial tool drive Working position Tool disk A/F - neck length A Tool system Motor arrangement Motor used Gear ratio	3° / 9° / 12° SW ₁ / SW ₂ / SW ₃ / A ₁ / A ₂ DIN 69880 / Sandvik / Capto U/Z - right/left s. page 33 1,0 / 1,5	
Special requirements: 