Product information PI 57

Disk-type tool turret

with tool drive

Series **0.5.434.0xx**

2015-08-10

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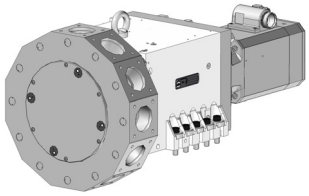
Disk-Type Tool Turret



Series 0.5.434.0xx
with Tool Drive

You can request following projection instruction:

- 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

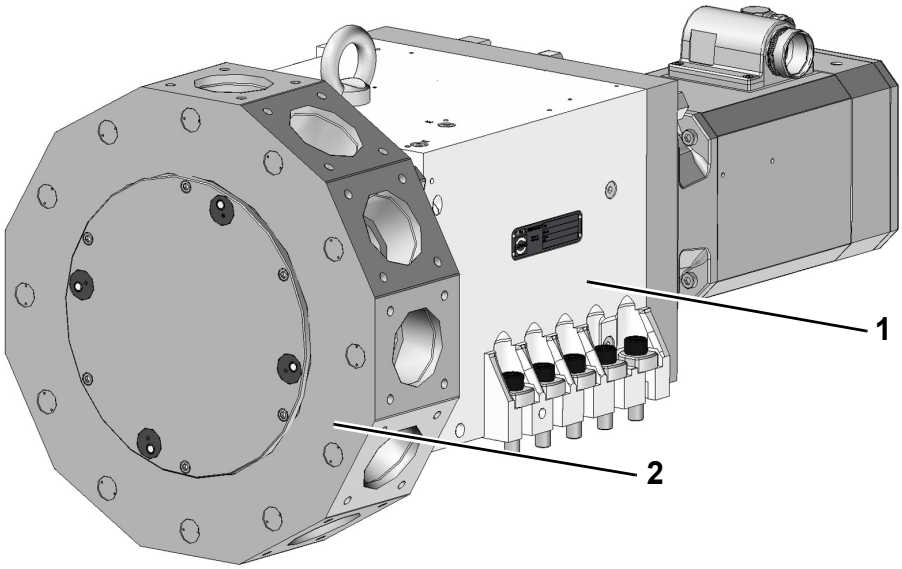
Series 0.5.434.0xx
witht Tool Drive

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.

Features

- ➢ Drive with controllable electric motor for very fast bidirectional swivel use of:
  - SAUTER drive with rotary encoder activation and customary control
  - Customary servo motors
- ➢ Heavy loads 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 indexing drive
  - ➪ Fastening snap-ring groove for the tool disk
- ➢ Directly controllable with machine controller (not apply to DELTA drive unit EK 700)
- ➢ Can be installed in any position
- ➢ For all market BMT - interfaces (BMT45 / 55 / 65 / 75 / 85 u.a.)



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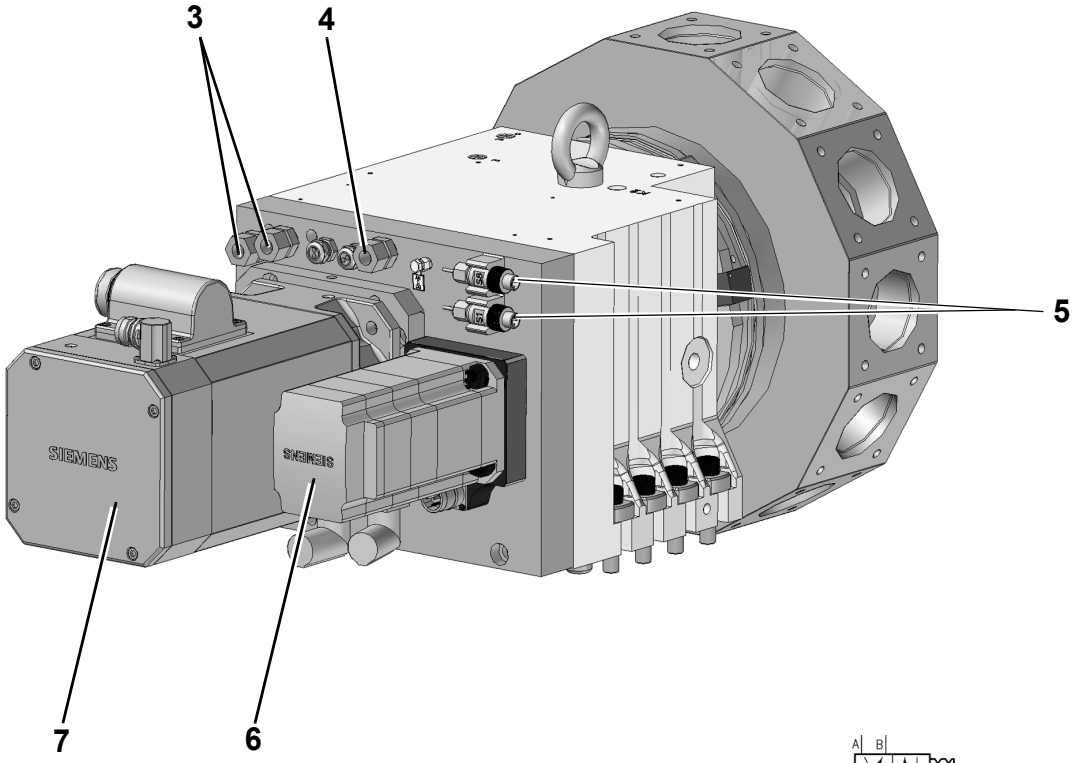
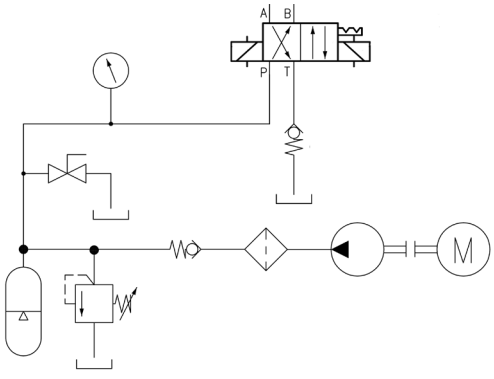




1 Turret housing
2 Tool disk
3 Connection - hydraulic loocking control
4 Connection - cooling lubricant
5 Connection - Elektric
6 Motor for indexing drive
7 Motor for tool drive

Technical Data

Series			
Disk-type tool turret 0.5.434.0xx			
Number of indexing positions			
Admissible tangential load (turret locked)[1]			kNm
Admissible mass moment of inertia of tools[1)2)] with tool disk and holder		Standard High load	kgm^2 kgm^2
Admissible out of balance (load moment) due to tooling			Nm
Gear ratio swivel drive			i
Indexing times[3)]			s
Rotate tool disk:[4)]			
• incl. acceleration and braking	per partial step	Standard High load	s s
• without acceleration and braking	per additional partial		s
Turret unlock/lock -hydraulic			s
Adm. indexing frequency3) (median indexing angle jm =90°)			
Operation pressure			
Hydraulic ± 10%			bar
Cooling lubricant			
• Standard			bar
• Medium pressure valve			bar
• High-pressure cooling lubricant device			bar
Fluid absorption volume			
Turret unlock/lock			cm3
Mass			
Turret (incl. drive motor[5)]			kg
Tool disk and tooling (max)			kg
Adm. ambient temperature			°C

1) Higher values on request

2) Indexing times on request

3)Conditions:
- Fluid supply sufficiently large
- Turret up to operating temperature
- Without controller-related non-productive time
- 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												
16			**20**			**25**			**32**			
8	12	16	8	12	16	8	12	16	8	12	16	
1,8			3,6			7,2			12,5			
1,8 2,5			3,2 5,0			8 12			25 40			
32			63			125			200			
54			72			90			216			
	0,13 0,15			0,16 0,19			0,21 0,25			0,27 0,31		
	0,07			0,09			0,11			0,27		
	0,12			0,13			0,2			0,5		
20			16			12			10			
50			50			50			50			
5 - 25 (Filtering ≤100µm)[7)] 5 - 50 (Filtering ≤ 50µm[7)] 150 (Filtering ≤ 25µm)[7)]												
30			45			65			114			
50 80			70 160			110 250			220 400			
10 ... 40												

Recommended motors for indexing drive degree of protection to IP 67	J kgm2	Adm. drive speed rpm	swiveling times for 30°-step without acceleration and braking s Size of turret			
			16	20	25	32
SAUTER with encoder[1)]	0,0003	4500	0,06	0,08	0,10	0,24
Siemens 1FK7043 HD	0,0001	6000	0,05	0,06	0,08	0,18
Siemens 1FK7042	0,0003	4500	0,06	0,08	0,10	0,24
Fanuc α 2/5000 / β 2/5000	0,0003	4500	0,06	0,08	0,10	0,24
Delta with Delta-control unit	0,0003	4000	0,07	0,09	0,11	0,27

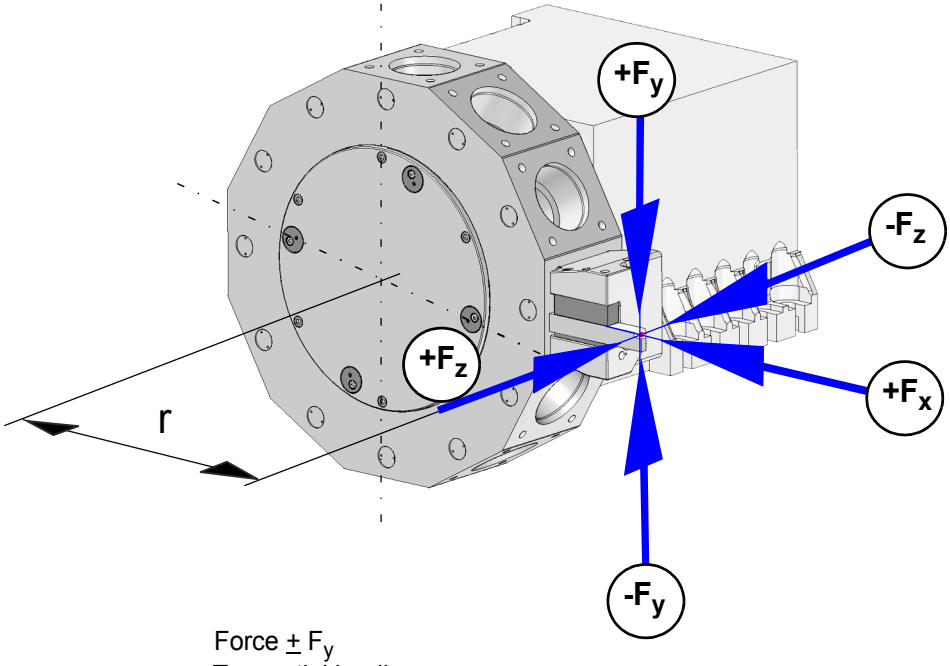
1) controlled via machine controll system

Admissible Loads

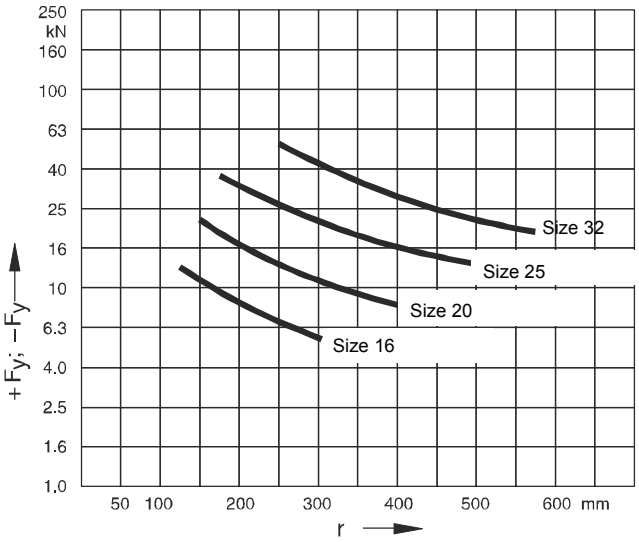
Note

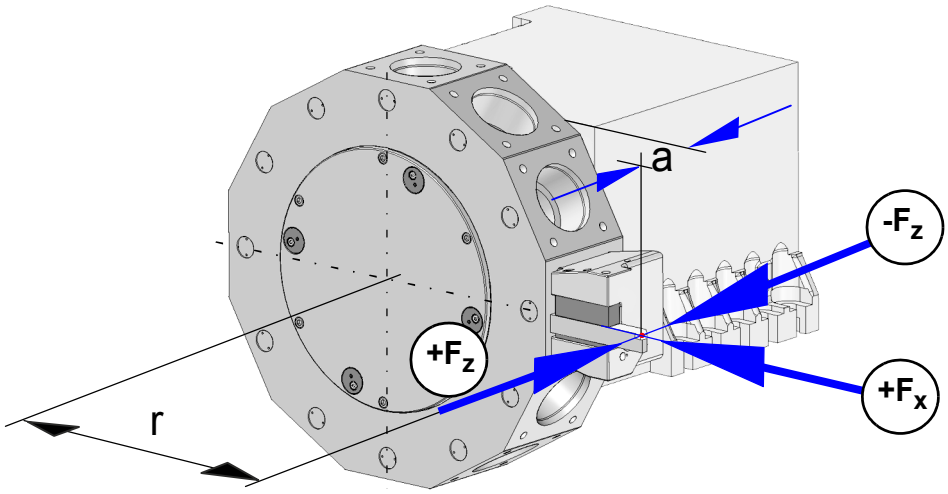
➢ The diagrams refer to static loads.

➢ In case of impact load (interrupted cutting), significantly lower values must be reckoned with.

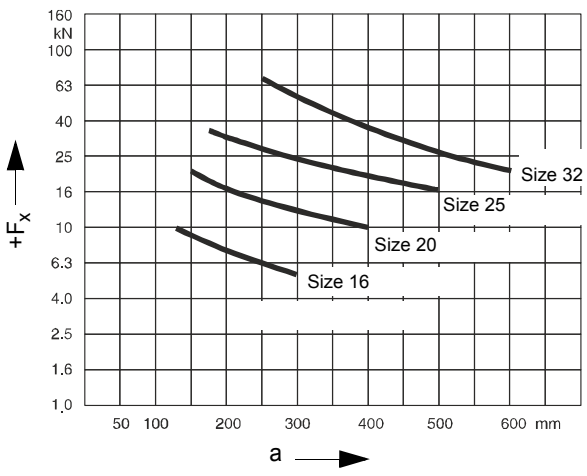


Force ± F_y
Tangential loading

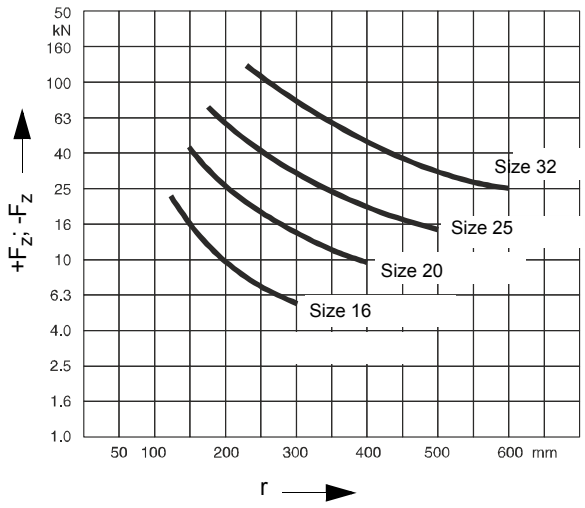




Force $+F_x$
Shunt loading
leading edge is the basis for dimension a



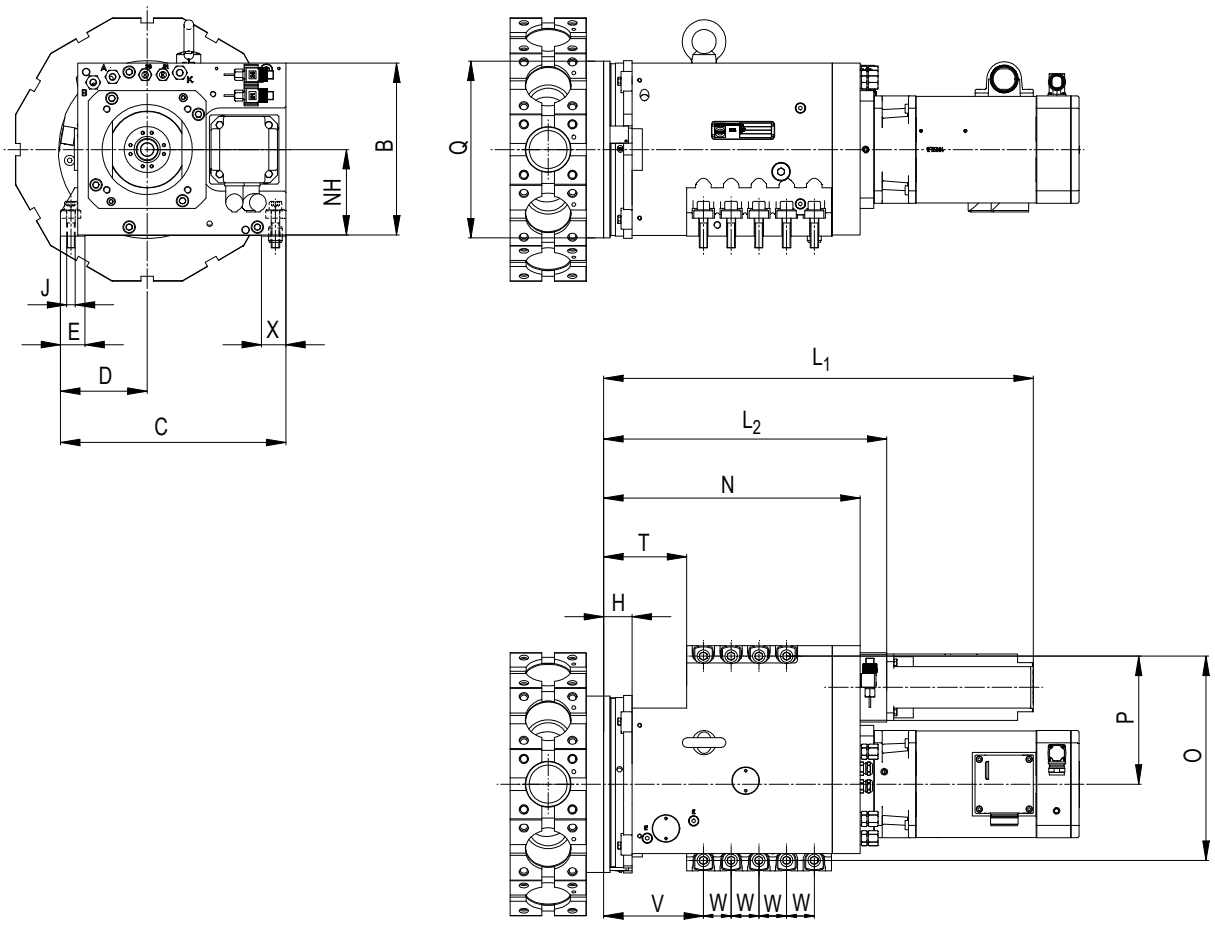
Force $\pm F_z$
longitudinal loading



Dimension L-shape (NH Standard 1)

Note

➢ with housing compatible with series 0.5.434.4xx

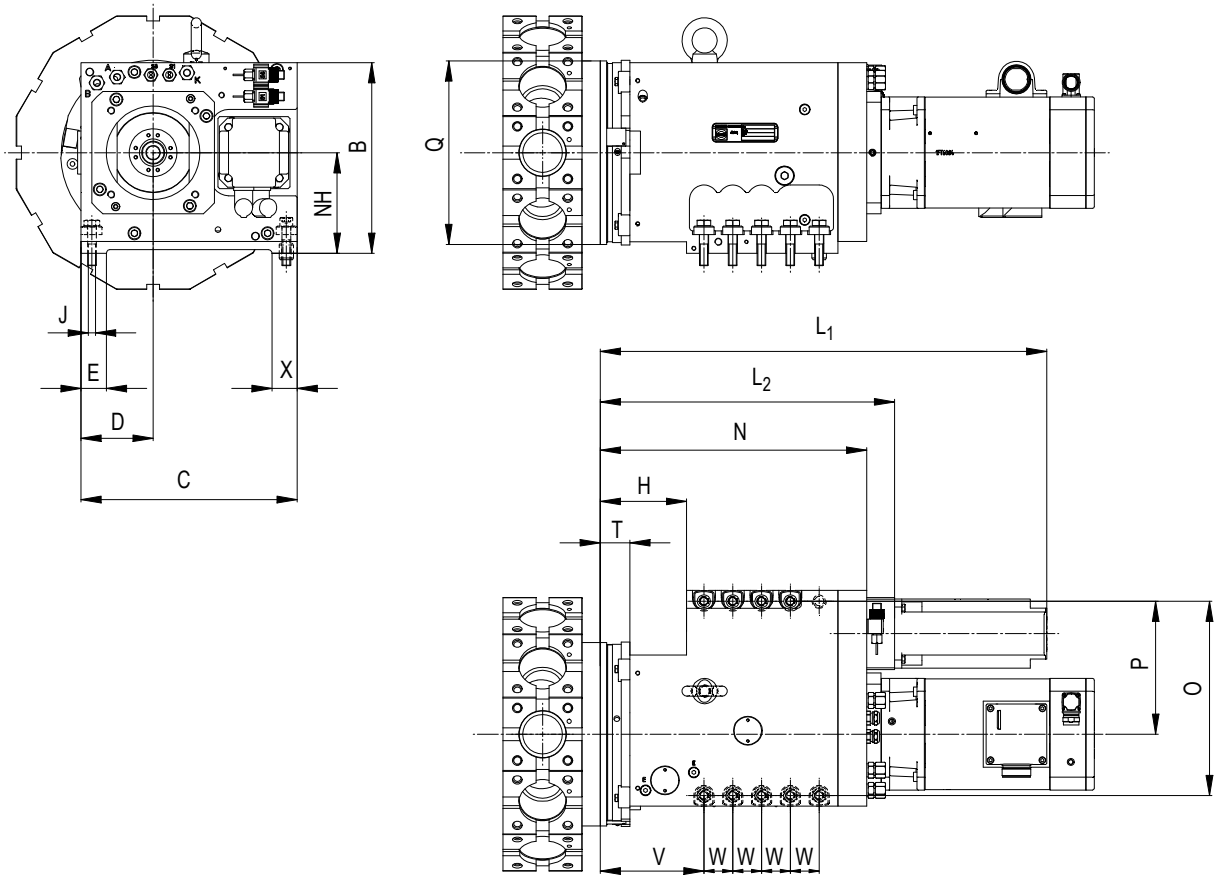


Series		Size			
Disk-type tool turret 0.5.434.0xx - L-shape (NH Standard 1)		**16**	**20**	**25**	**32**
NH		100	125	150	
B		200	250	300	
C		284	325	406	
D		102	125	158	
E		26	35	45	
H		40	41	52	
J		M10	M12	M16	
L					
SAUTER drive 1.8.150.573	L_1	454	474	520	
Delta-Motor with control unit	L_1	375	395	441	
Siemens 1 FK7 43/42	L_2	374	394	440	
Fanuc $\alpha 2$ / $\beta 2$	L_2	359	379	425	
N		234	370	412	
O		240	295	370	
P		150	185	230	
Ø Q		160	255	318	
T		105	120	150	
V		127	144	176	
W		34	40	42	
X		34	35	45	

Dimension L-shape (NH Standard 2)

Note

➢ housing compatible with series 0.5.434.4xx

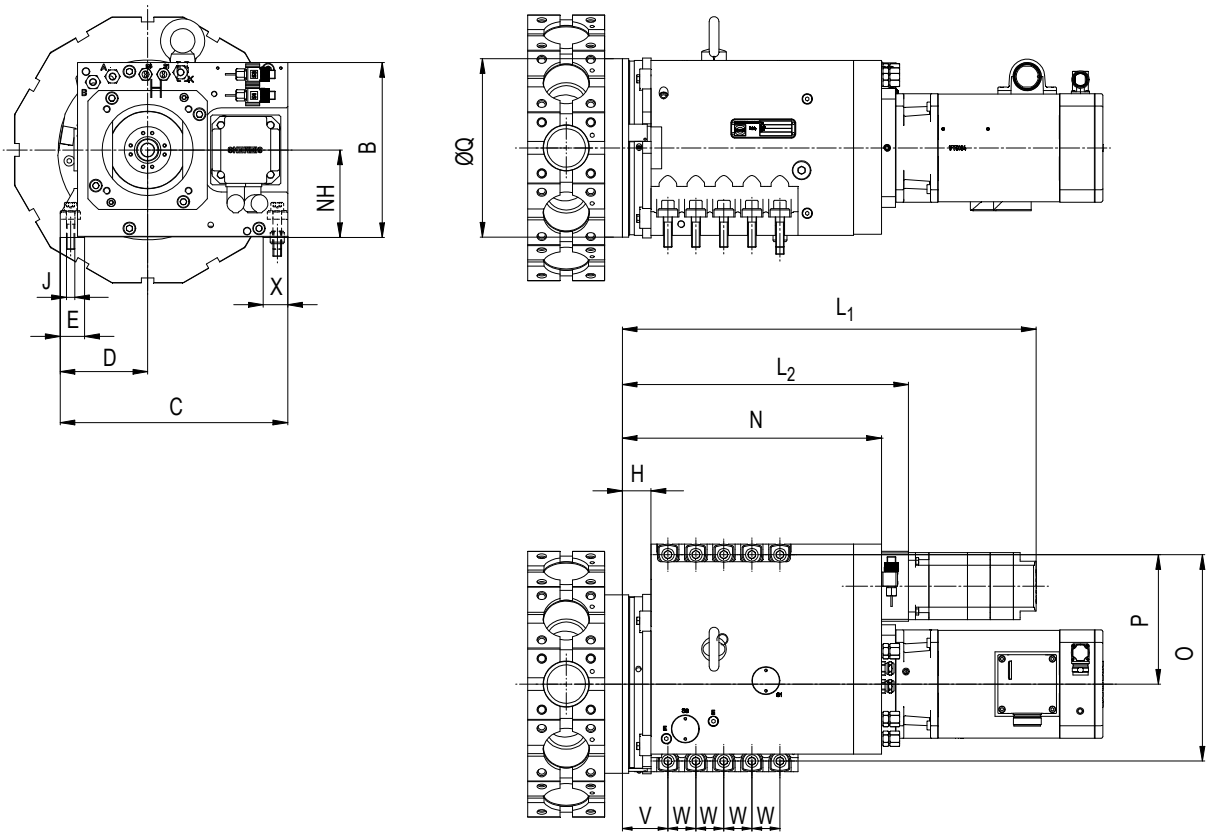


Series		Size			
Disk-type tool turret 0.5.434.4xx - L-shape (NH Standard 2)		**16**	**20**	**25**	**32**
NH			140	180	
B			265	330	
C			300	373	
D			100	125	
E			35	45	
H			41	52	
J			M12	M16	
L					
SAUTER drive 1.8.150.573	L_1		474	520	
Delta-Motor with control unit	L_1		395	441	
Siemens 1 FK7 43/42	L_2		394	440	
Fanuc $\alpha 2$ / $\beta 2$	L_2		379	425	
N			370	412	
O			270	337	
P			185	230	
Ø Q			255	318	
T			120	150	
V			144	176	
W			40	42	
X			35	45	

Dimension block shape (reinforced version / NH Standard 1)

Note

➢ with housing compatible with series 0.5.434.xxx

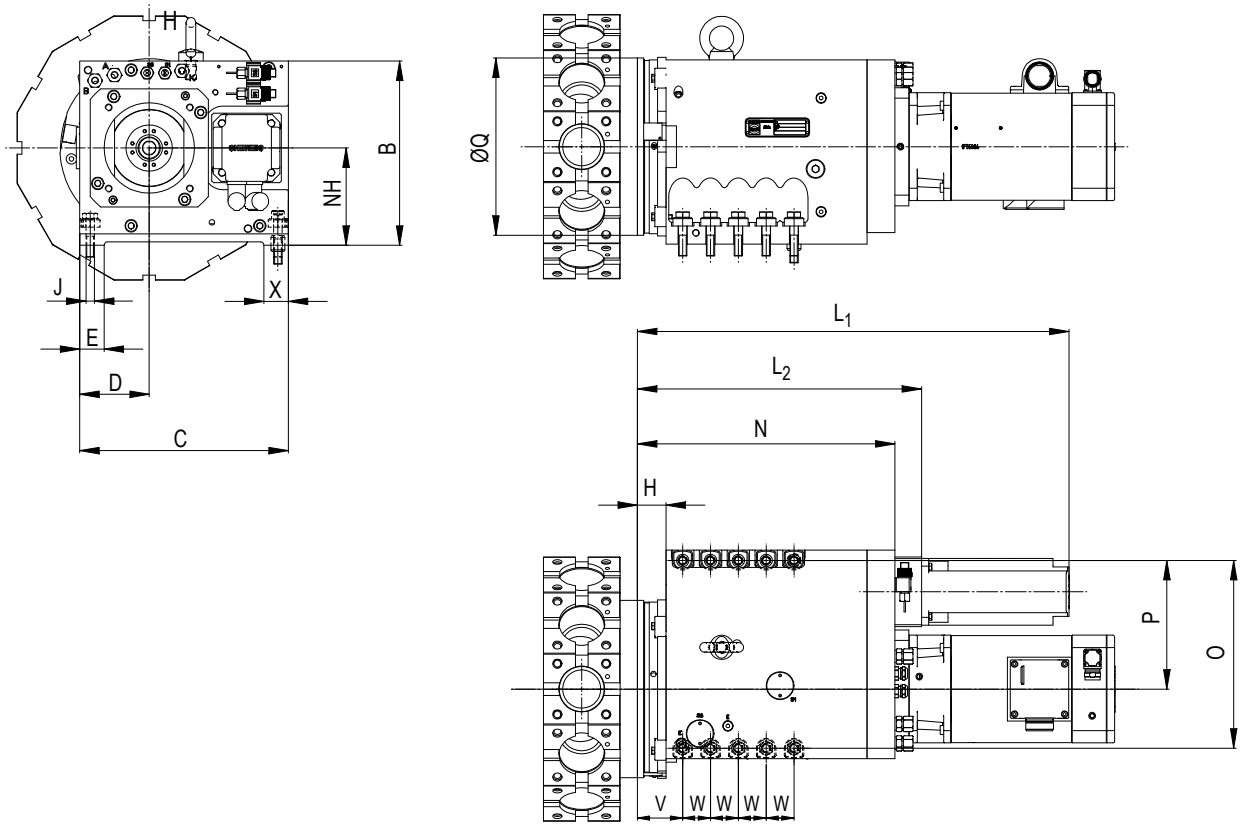


Series		Size			
Disk-type tool turret 0.5.434.xxx - block shape (Standard 1)		**16**	**20**	**25**	**32**
NH		100	125	150	200
B		200	250	300	400
C		284	325	406	520
D		102	125	158	198
E		30	35	45	48
H		40	41	52	62
J		M10	M12	M16	M20
L					
SAUTER-Motor 1.8.150.573	L_1	454	474	520	666
Delta-Motor with Delta-control unit	L_1	545	516	576	722
Siemens 1 FK7 43/42	L_2	438	409	440	586
Fanuc $\alpha 2$ / $\beta 2$	L_2	123	395	425	571
N		340	370	412	528
O		240	295	370	476
P		150	185	230	300
Ø Q		160	255	318	396
V		62	65	78	96
W		34	40	42	52
X		50	35	45	48

Dimension block shape (reinforced version / NH Standard 2)

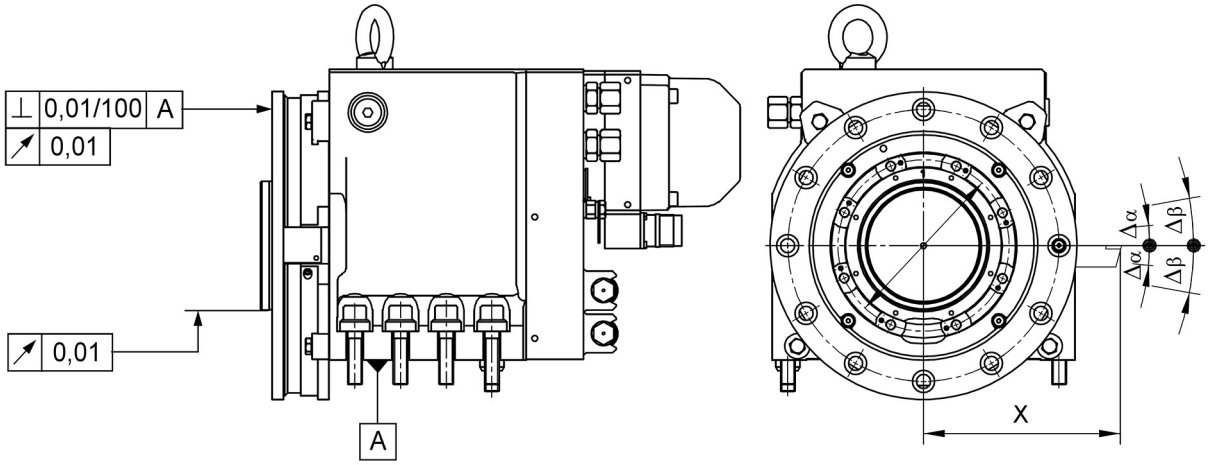
Note

➢ with housing compatible with series 0.5.434.xxx



Series		Size			
Disk-type tool turret 0.5.434.xxx - Block shape (Standard 2)		**16**	**20**	**25**	**32**
NH			140	180	
B			265	330	
C			300	373	
D			100	125	
E			35	45	
H			41	52	
J			M12	M16	
L					
SAUTER-Motor 1.8.150.573	L_1		474	520	
Delta-Motor with Delta-control unit	L_1		516	576	
Siemens 1 FK7 43/42	L_2		409	440	
Fanuc α2 / β2	L_2		394	425	
N			370	412	
O			295	370	
P			185	230	
Ø Q			255	318	
V			65	78	
W			40	42	
X			35	45	

Precision



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

$$\Lambda\alpha = \pm\ 1{,}6\text{“} \geqq\ \pm 0{,}8\ \text{x}\ \frac{X[mm]}{100[mm]}[\mu m]$$

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

$$\Lambda\beta = \pm\ 4\text{“} \geqq\ \pm 2\ \text{x}\ \frac{X[mm]}{100[mm]}[\mu m]$$

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 for tool drive (see below).

Series			Size			
Disk-type tool turret 0.5.434.0xx			**16**	**20**	**25**	**32**
performance data						
Adm. drive rating[1)]	P_{zul}	kW	8	10	12,5	18
Adm. torque[2)]	M_{zul}	Nm	32	63	100	180
Adm. rpm[1)3)]	n_{zul}	min^{-1}	6000	6000	4000	4000
ratio i=n_1 / n_2			1.0	1,0	1,0	1,0
Recommended motors for tool drive						
Siemens servo motor Typ 1 FT 6..			.. 84 - 1AK	..086 - 1AH	..105 - 8AF	.. 108 - 8AF
Fanuc servo motor Typ α			12/6000 is	22/4000 is	40/4000 is	50/3000
Fanuc spindle motor Typ α			2	3	6	15 HVi

1) The values are reference values for short-term operation. Higher rpm generate more heat and noise,

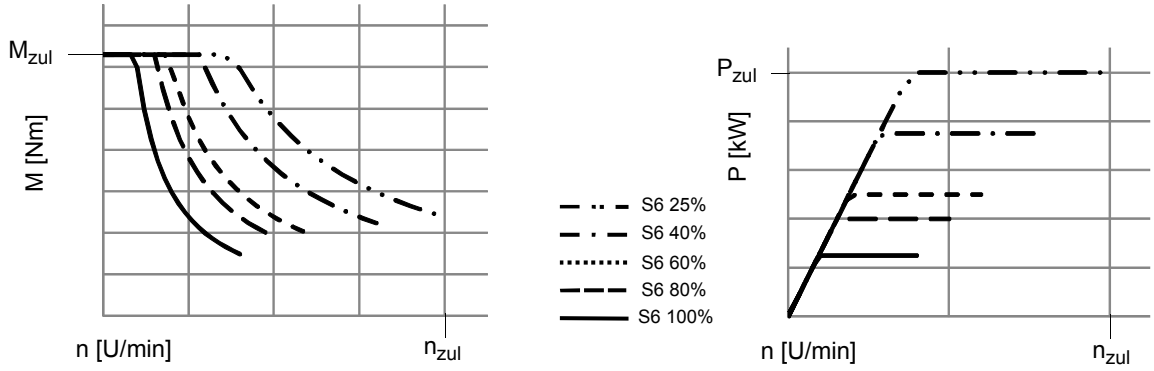
2) Torque limitation at motor converter required! The torque values apply to smooth-machining (such as thread drilling).
In the case of machining with severe shock loads
(e.g. face milling and similar operations) it is necessary to reduce the motor drive torque by 50% or more.

3) Higher rpm on request

Admissible duty cycle (DC)

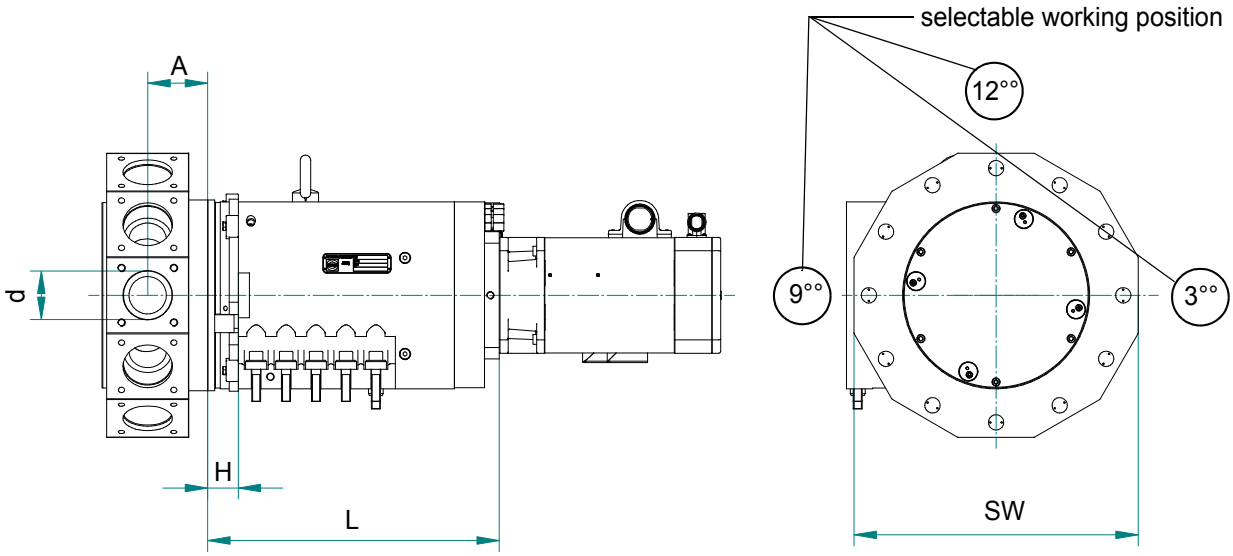
Tool drive

Performance Diagram



See appendix performance data tool drive

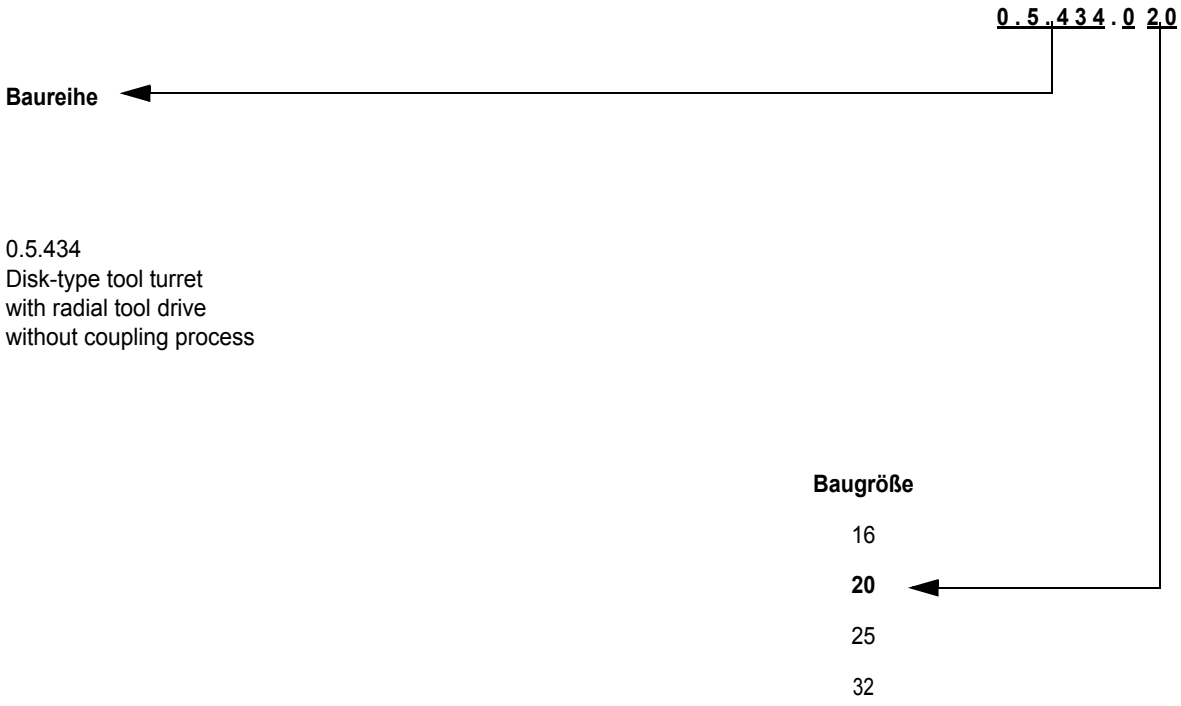
Dimensions



Series			Size			
Disk-type tool turret 0.5.434.0xx			**16**	**20**	**25**	**32**
interface preferred series[1)]			BMT 55	BMT 65	BMT 75	BMT 85
distance	A		70	80	100	120
	H		40	41	52	62
	d		55	65	75	85
	SW	-standard	330	380	430	530
Tool drive						
Siemens servo motor			1FT6 084	..086 - 1AH	..105 - 8AF	.. 108 - 8AF
	L		-	390	452	-
Fanuc servo motor		Typ α	12/600	22/4000 is	40/4000 is	50/3000 is
	L		-	-	-	-
Fanuc-spindle motor		Typ α	α 2	α 3	α 6	15 HVi
	L		-	-	-	-

1) further interfaces on request

Type key


0.5.434.020
Baureihe
0.5.434
Disk-type tool turret
with radial tool drive
without coupling process
Baugröße
16
20
25
32

Ordering Informations

++49 (0) 7123-926-190


++49 (0) 7123-926-0


info@sauter-feinmechanik.com


Sauter Feinmechanik GmbH
po box 1551
D-72545 Metzingen
Germany

Company: _____

Street: _____

Postcode, Town: _____

Name: _____

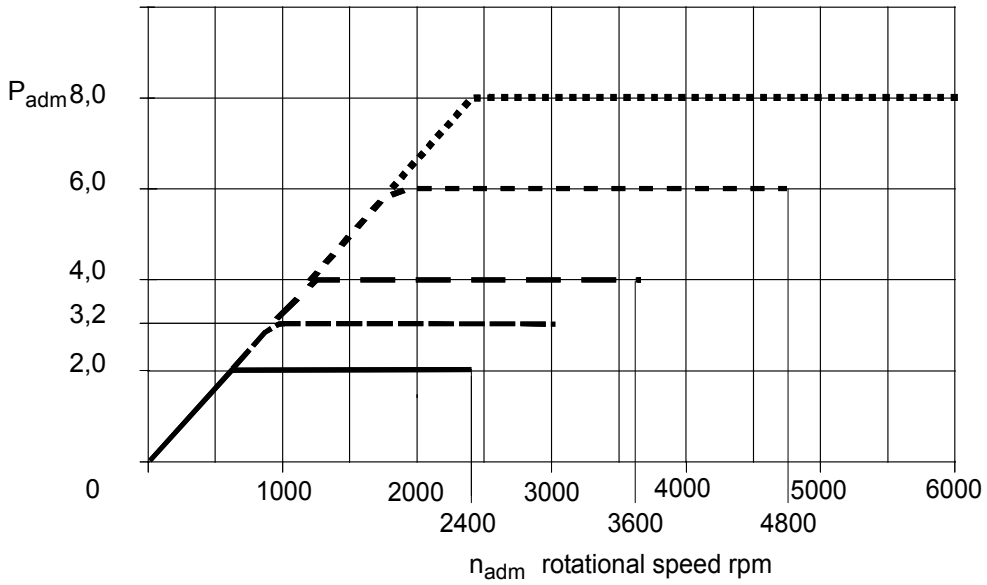
Phone: _____

Fax: _____

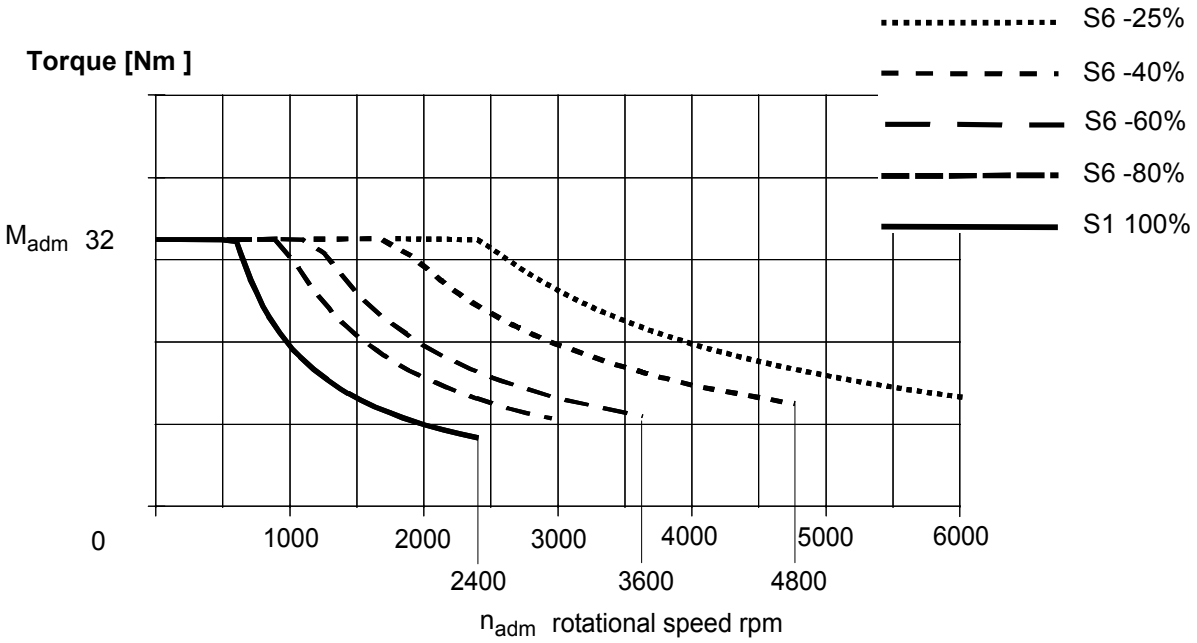
e-mail: _____

SAUTER-Disk-type tool turret 0.5.434.0xx		
Ordering informations	**Possible configurations**	**Your selection**
Basis turret		
Housing shape	L / Block (NH 1/2)	
Size	20 / 25	
Number of switching positions	8 / 12 / 16	
Motor for indexing drive	SAUTER / Siemens / Fanuc / ...	
Installation position		
Radial tool drive		
Working position	3°° / 9°° / 12°°	
Tool disc	SW	
Tool system	BMT 45 / 55 / 65 / 75 / 85	
Motor for tool drive	s. page 20	
Special requirements: ✎		

Power [kW]



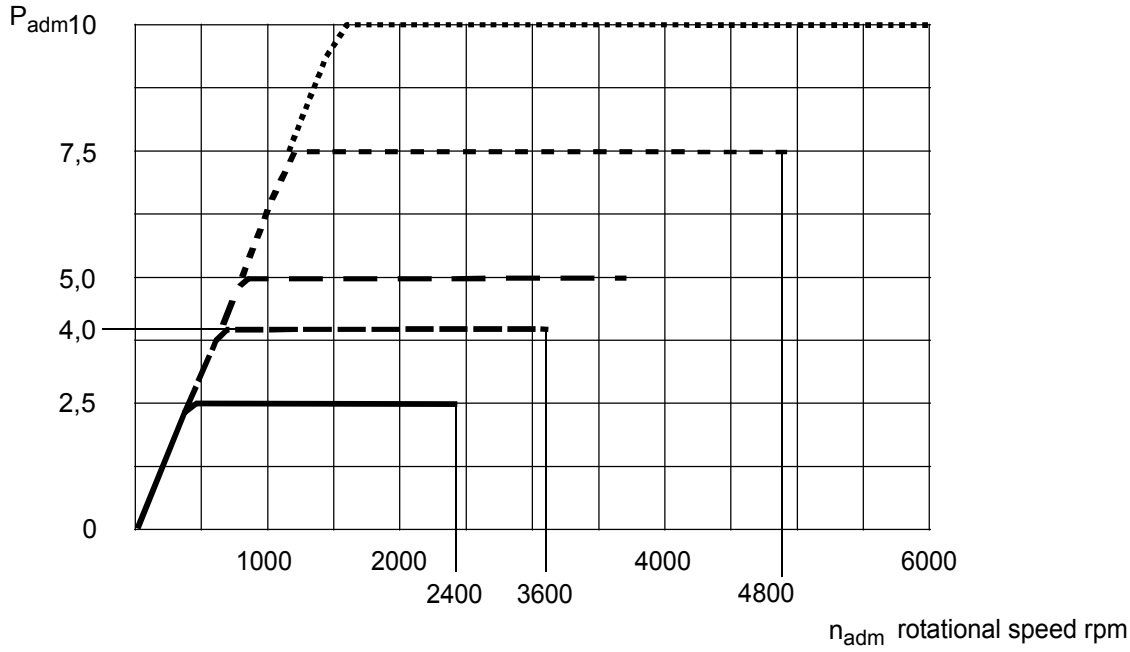
Torque [Nm]



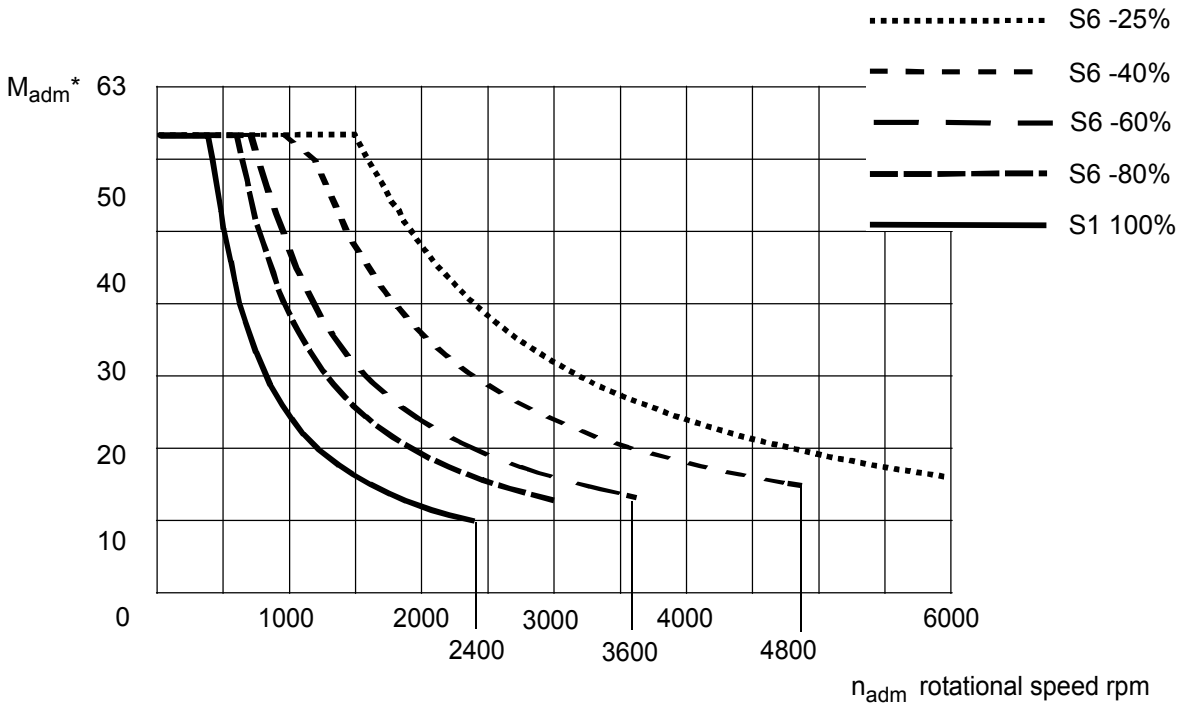
The data for duty type ED are valid for 10 min. duty cycle.

technical changes reserved

Power [kW]



Torque [Nm]



The data for duty type ED are valid for 10 min. duty cycle.

* In dependence of the limitation of the torque tool interface may be required.

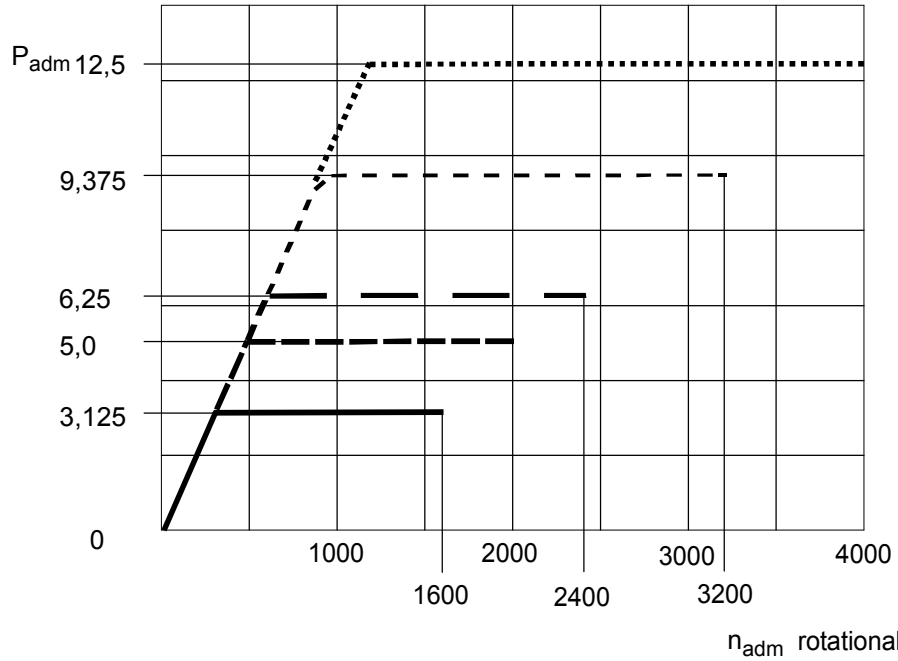
technical changes reserved

Tool Holder	M_{adml} [Nm]
BMT 45	20
BMT 55	32

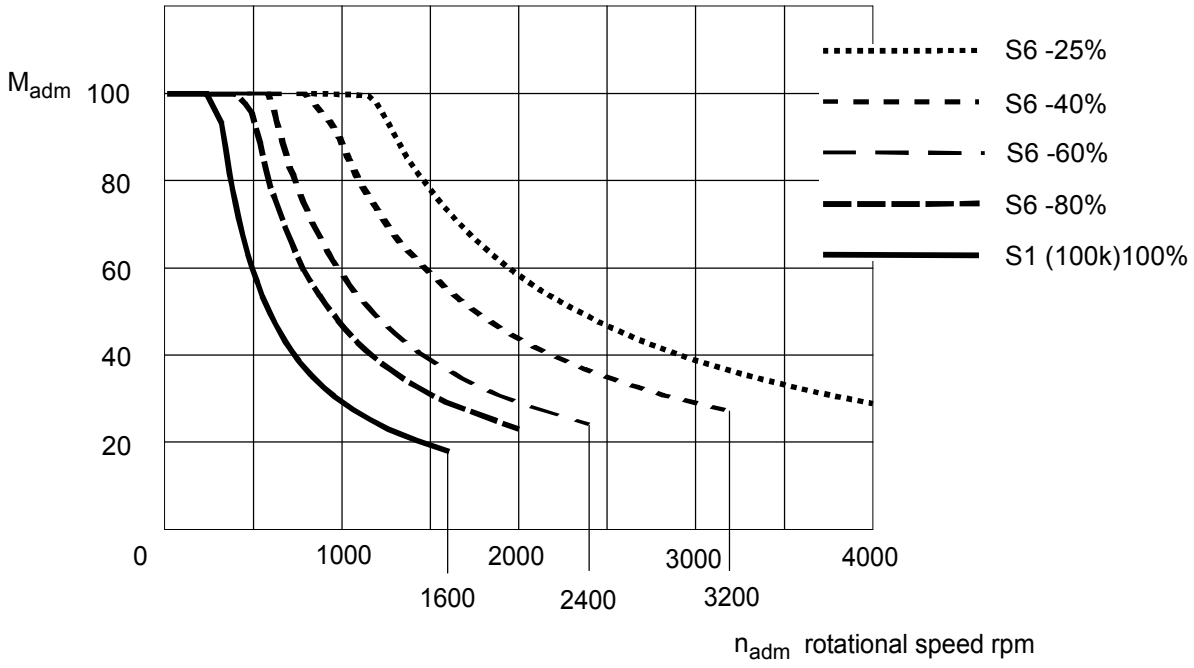
technical changes reserved

SAUTER Feinmechanik GmbH
Postfach 1551
D-72545 Metzingen
Germany
Fax:++49(0) 7123–926–193

Power [kW]



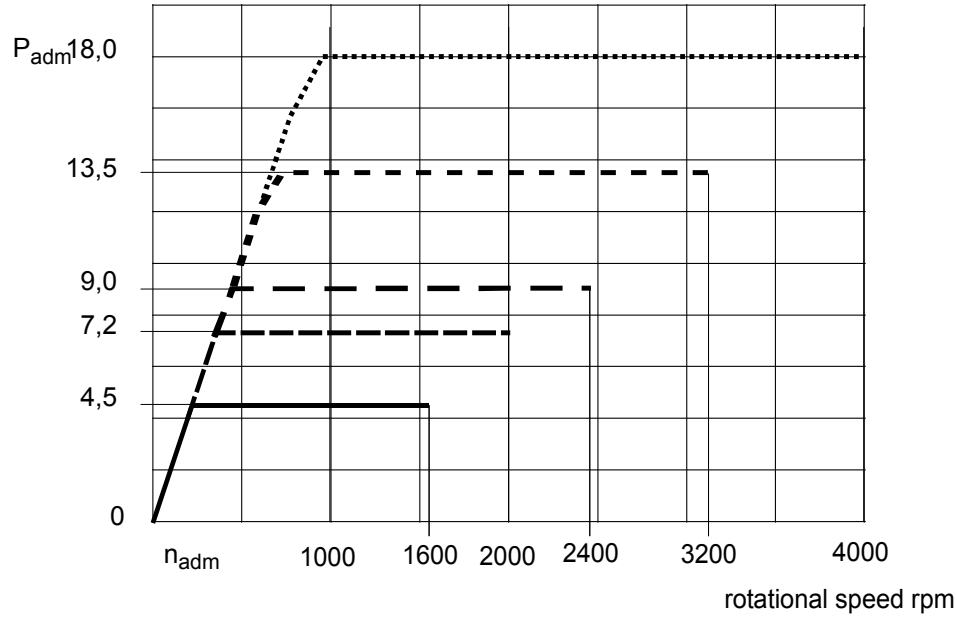
Torque [Nm]



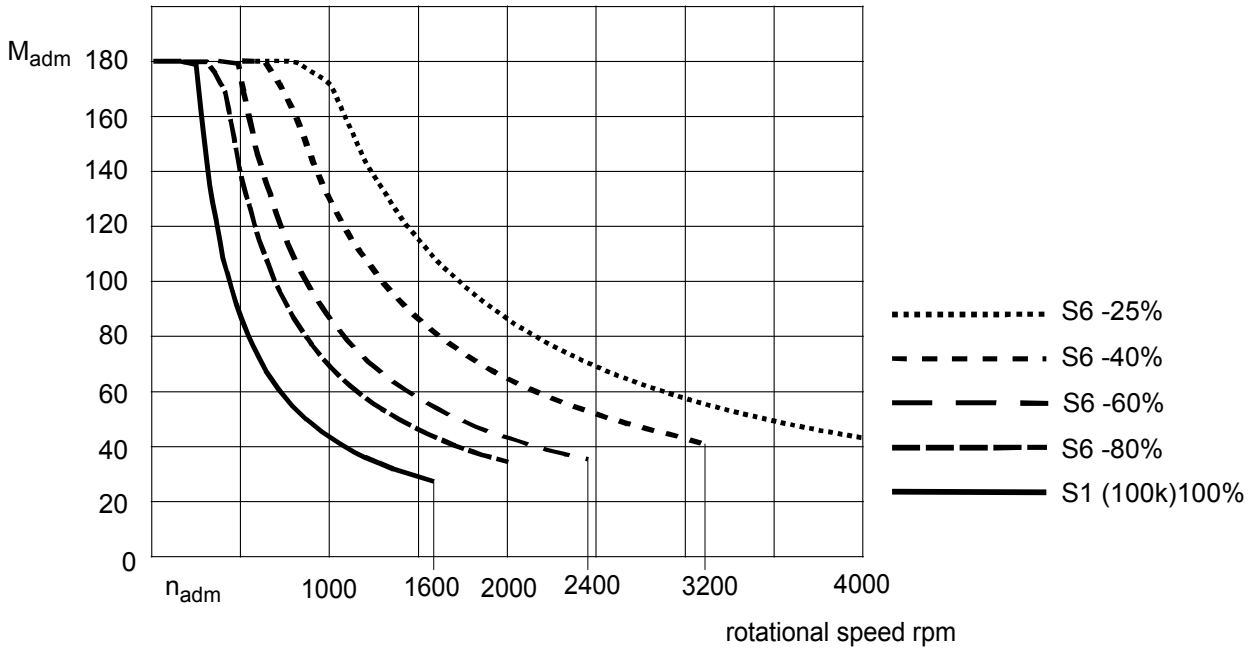
The data for duty type ED are valid for 10 min. duty cycle.

technical changes reserved

Power [kW]



Torque [Nm]



The data for duty type ED are valid for 10 min. duty cycle.

technical changes reserved