

**HEAVY CUTTING
CNC LATHES**

TC

SINGLE SPINDLE/ SINGLE TURRET



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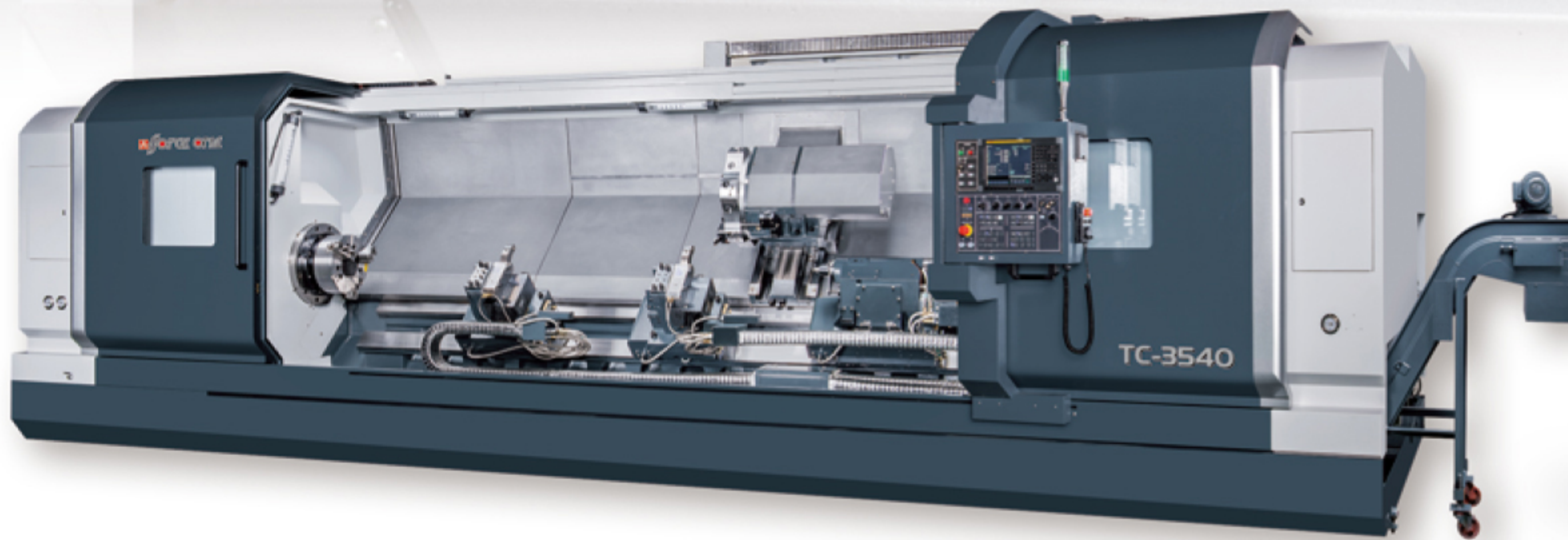
www.forceone.com.tw



FORCE ONE Heavy-Duty CNC Lathe

Provide users with significantly greater cutting capabilities, better cut quality and increased accuracy.

The design concept of **TC-35/40/45/50 series** services of CNC lathes is to enhance their heavy cutting capability high efficiency. With 500 – 1200 diameter of cutting, these machines are applicable for cutting large pipes and shafts in traffic and energy industries, etc.

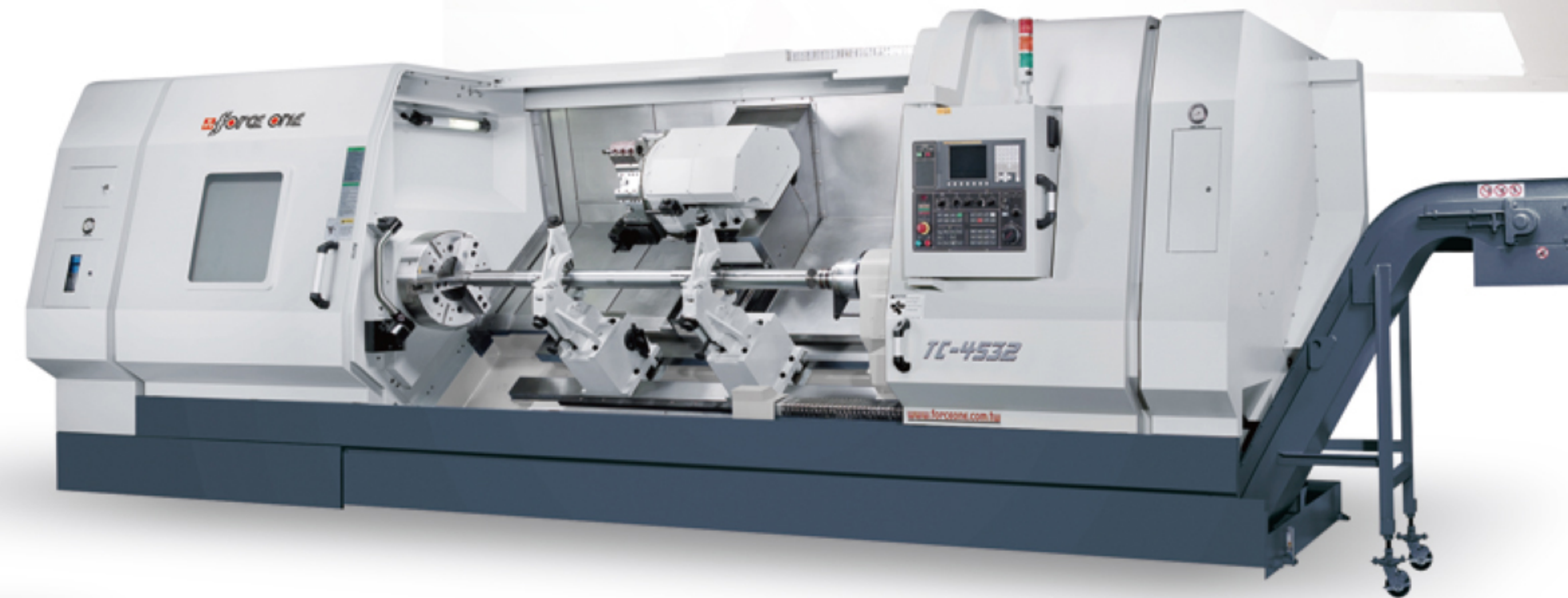


TC-35 series Features:

- Swing over bed ϕ 660 mm.
- Swing over saddle ϕ 480 mm.
- Max. turning diameter ϕ 500 mm
- Range of working length 760 - 3,040 mm
- 10-station hydraulic turret
- 2-speed gearbox
- Programmable tailstock

TC-40 series Features:

- Swing over bed ϕ 850 mm.
- Swing over saddle ϕ 640 mm.
- Max. turning diameter ϕ 710 mm
- Range of working length 760 - 3,040 mm
- 10-station hydraulic turret
- 2-speed gearbox
- Programmable tailstock



TC-45 series Features:

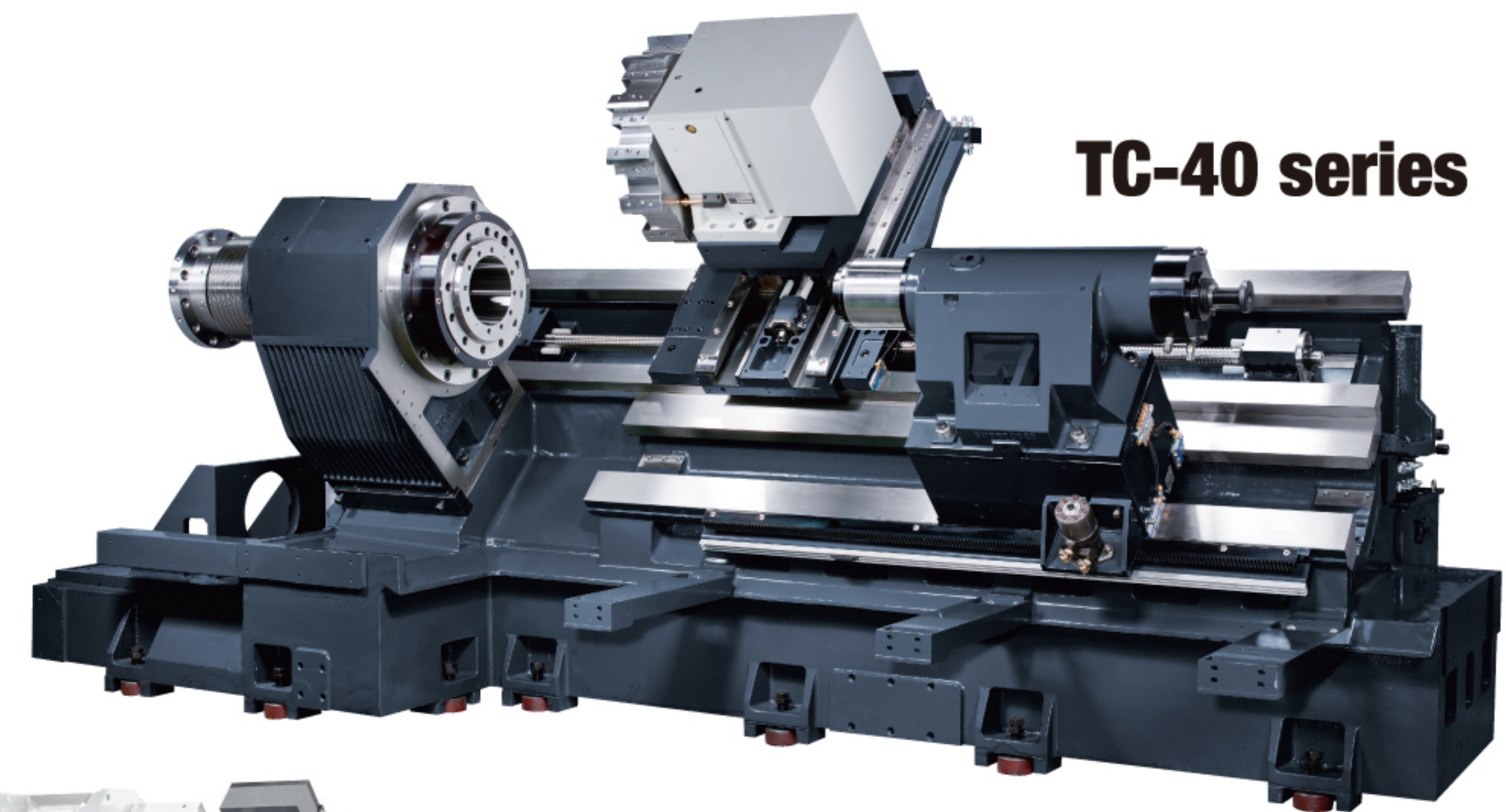
- Swing over bed ϕ 970 mm.
- Swing over saddle ϕ 720 mm.
- Max. turning diameter ϕ 850 mm
- Distance between center 1,130 - 3,090 mm
- 12-station hydraulic turret
- 3-speed heavy duty gear head
- Programmable tailstock

TC-50 series Features:

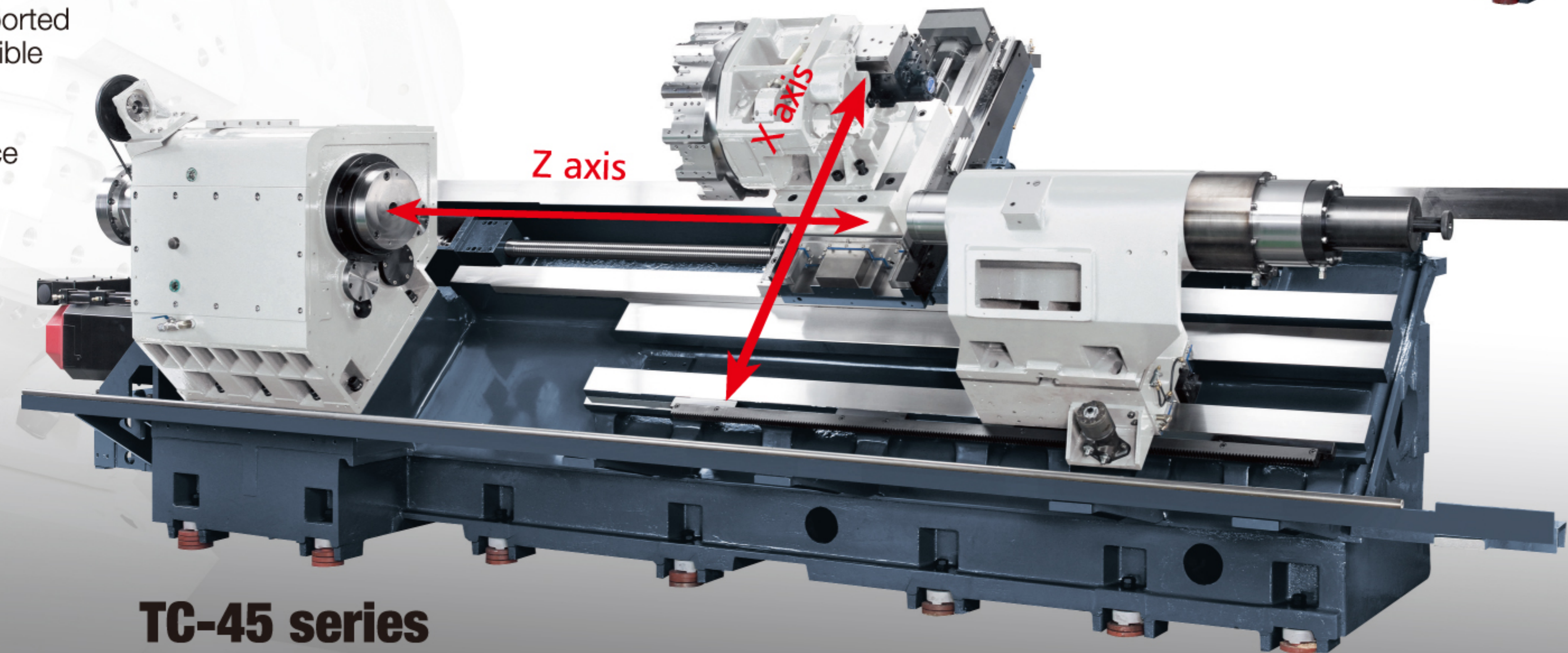
- Swing over bed ϕ 1100 mm.
- Swing over saddle ϕ 940 mm.
- Max. turning diameter ϕ 1020 mm
- Distance between center 2,200 - 5,110 mm
- 12-station hydraulic turret
- 4-speed heavy duty gear head
- Programmable tailstock

RIGID AND PRECISELY CONSTRUCTED THROUGHOUT

- Box ways on X, Z axis exhibit outstanding accuracy and load-resistance capacity
- Rigid and stable construction throughout
- One-piece constructed bed offers the optimal bending-resistance and torsion-resistance capabilities especially when performing heavy cutting on extra large workpiece
- The spindles on TC-35/40 series are driven by an imported gearbox with 1:4 gear ratio. Full power output is possible when spindle speeds range 208 - 2,500 rpm
- The heavy duty headstock on TC 45/50 is of one piece casting, and it is with 3 or 4 speed gear head, providing extra large torque output and making the machine ideal for heavy cutting.



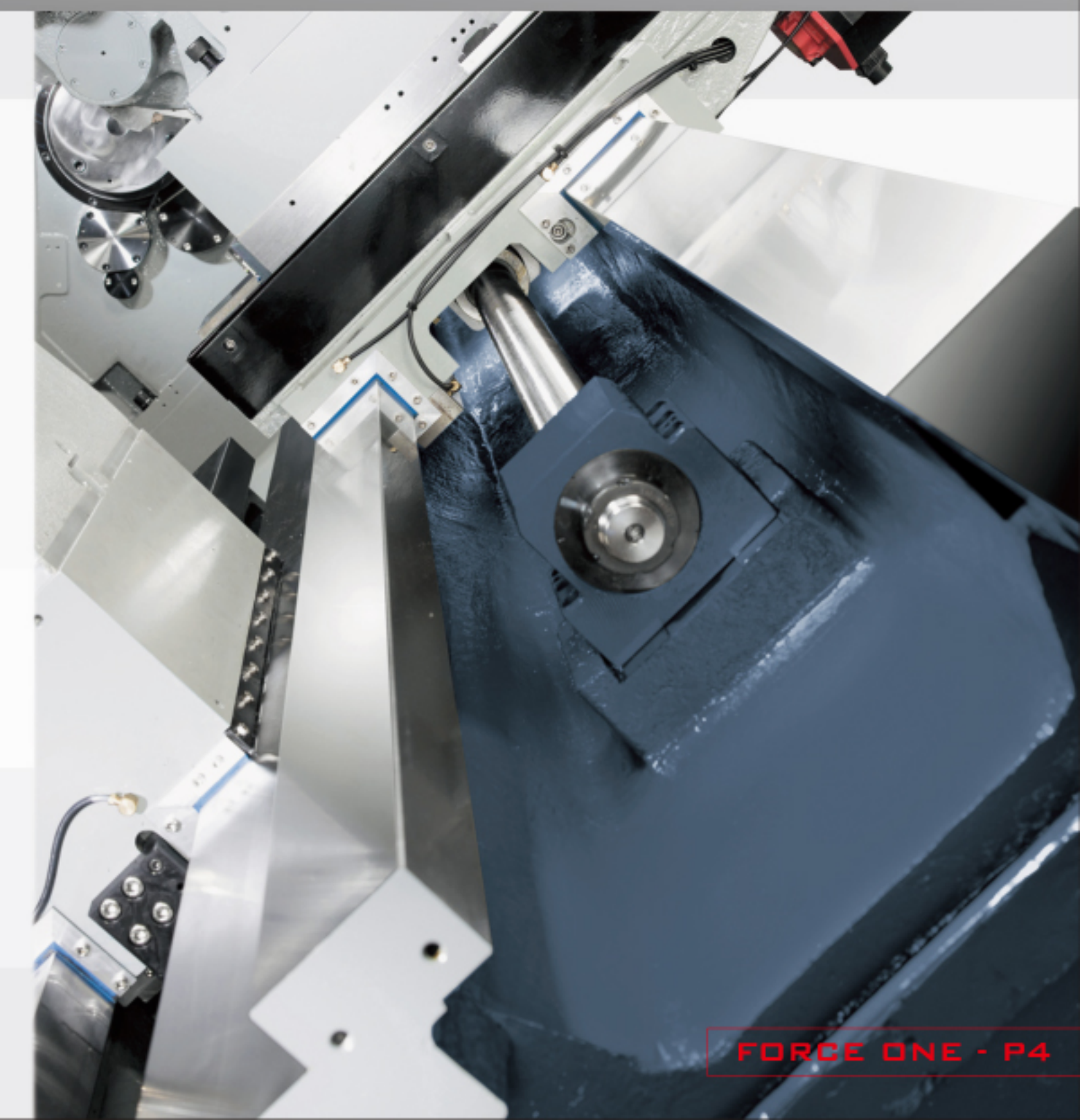
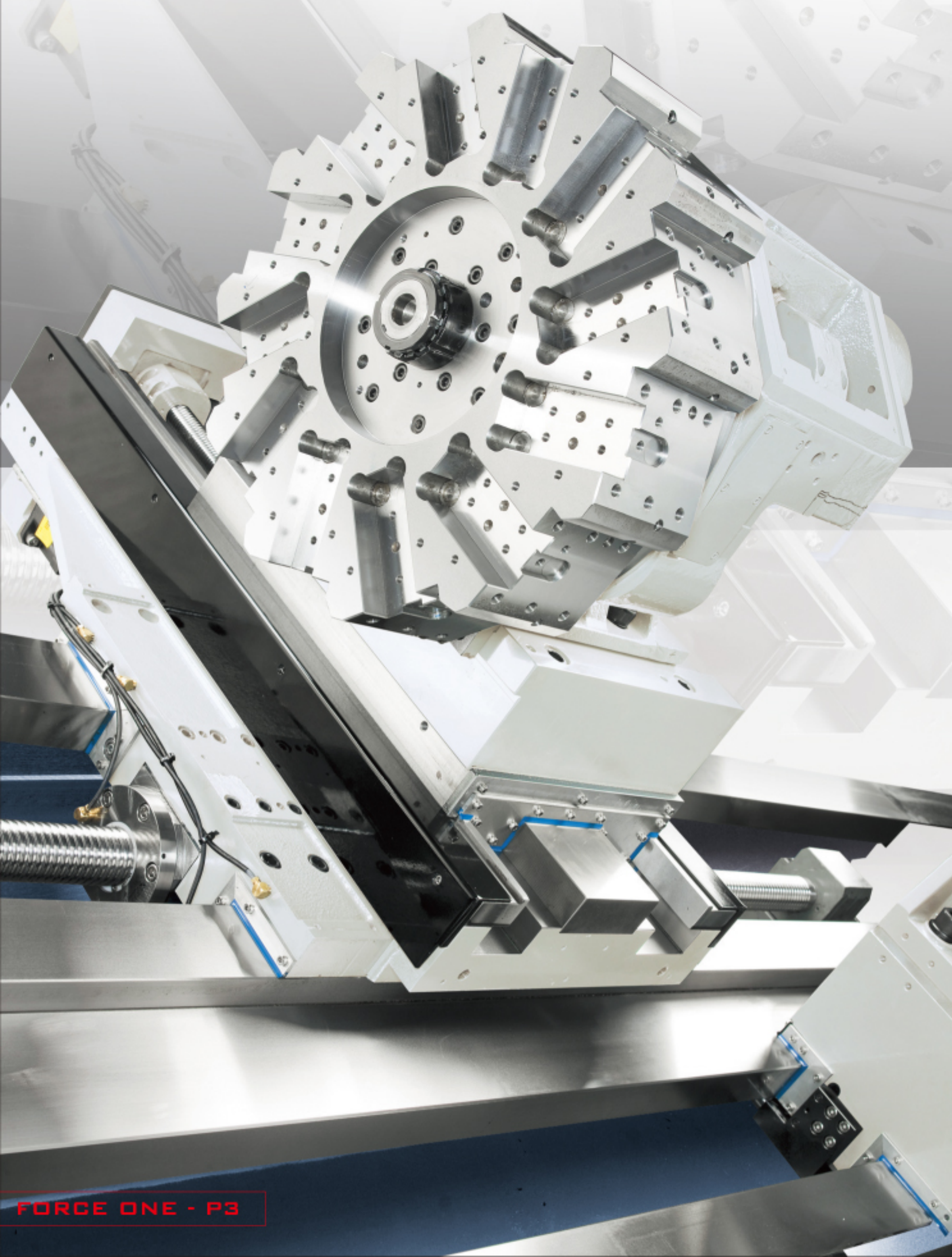
TC-40 series



TC-45 series

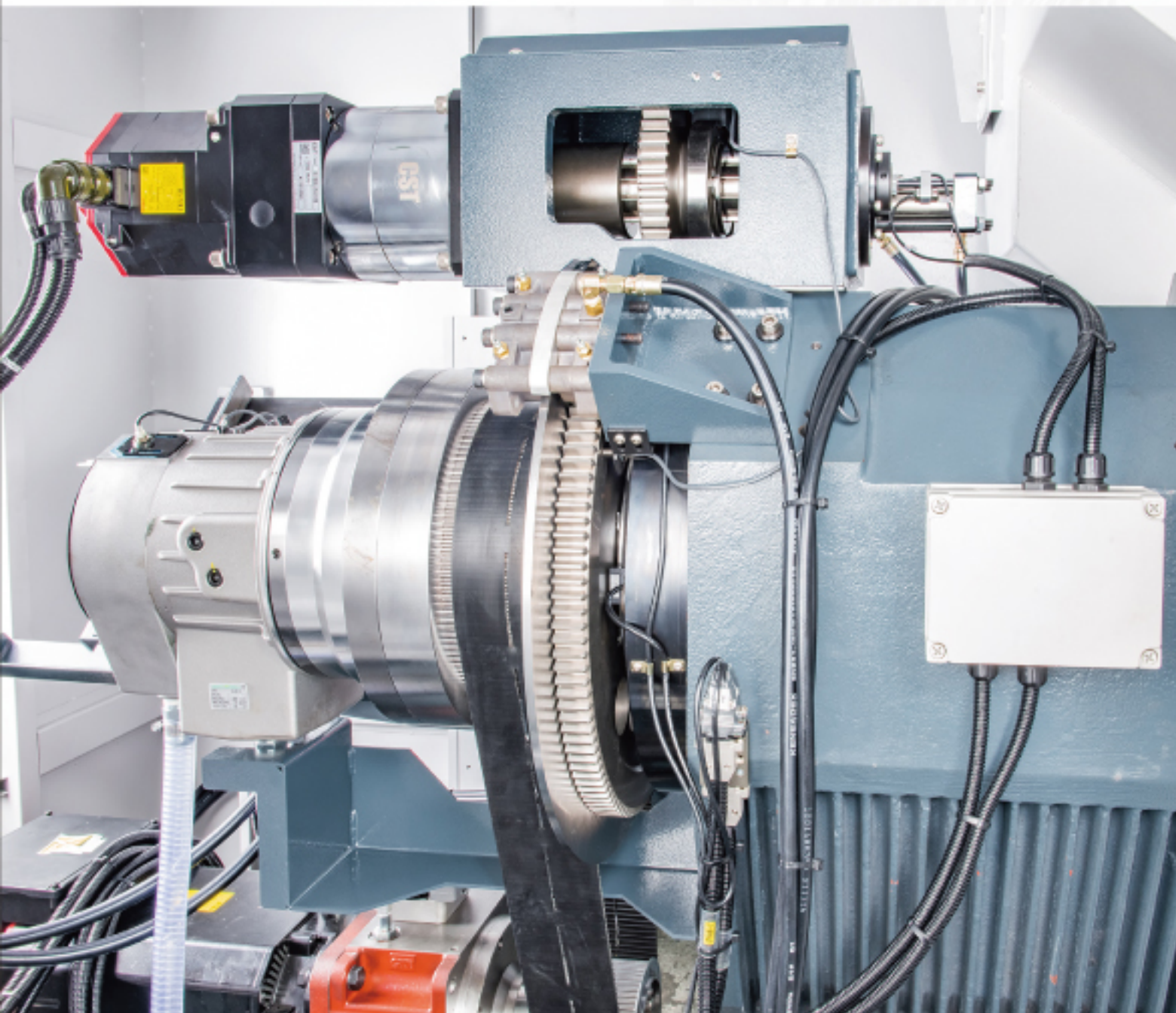
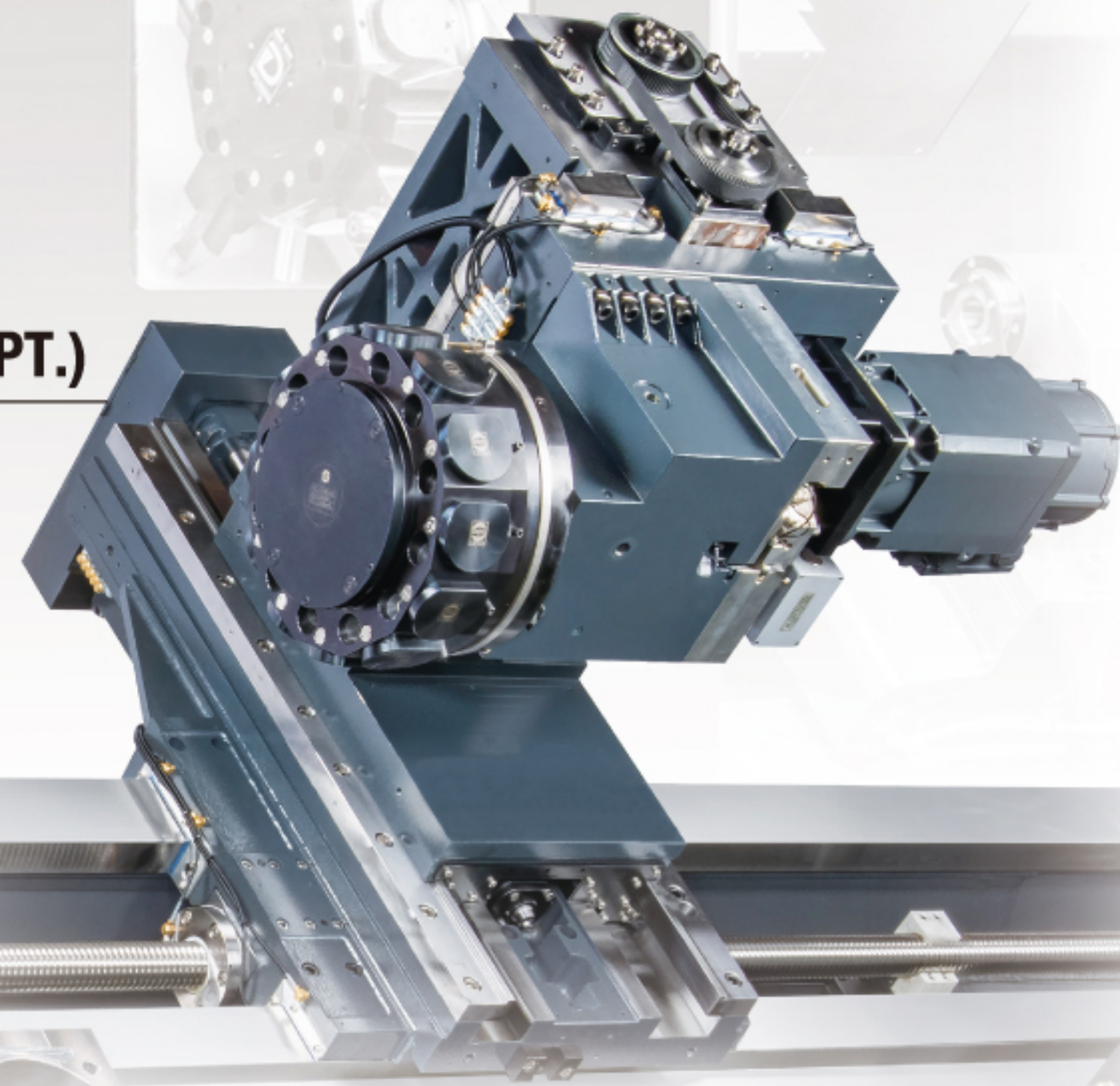
45 degrees slant bed construction features efficient chip removal and firm support.

The major machine parts, such as the base, saddle, headstock, slide and tailstock are made of **Meehanite** cast iron and tempered to relieve stress thereby ensuring lifetime accuracy.



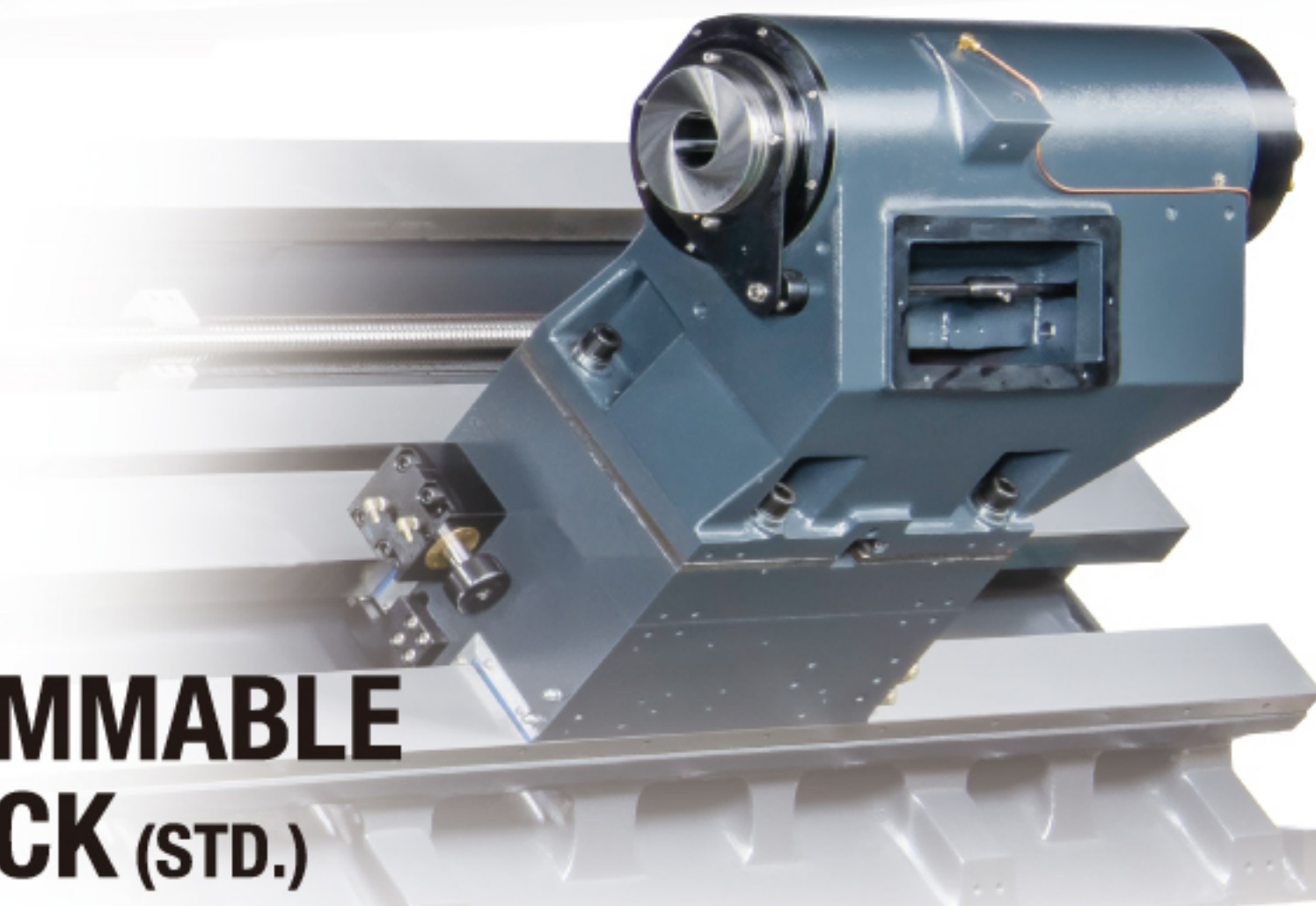
Machine Features:

Y AXIS (OPT.)



CF AXIS (OPT.)

PROGRAMMABLE TAILSTOCK (STD.)



FRONT AND REAR CHUCK (OPT.)



SERVO TURRET INDEXING (STD.)

- A. Heavy-duty station tool turret is driven by low noise, high torque servo indexing motor.
- B. It's high accuracy positioning and features bidirectional random selection to shortest path, achieves high productivity.

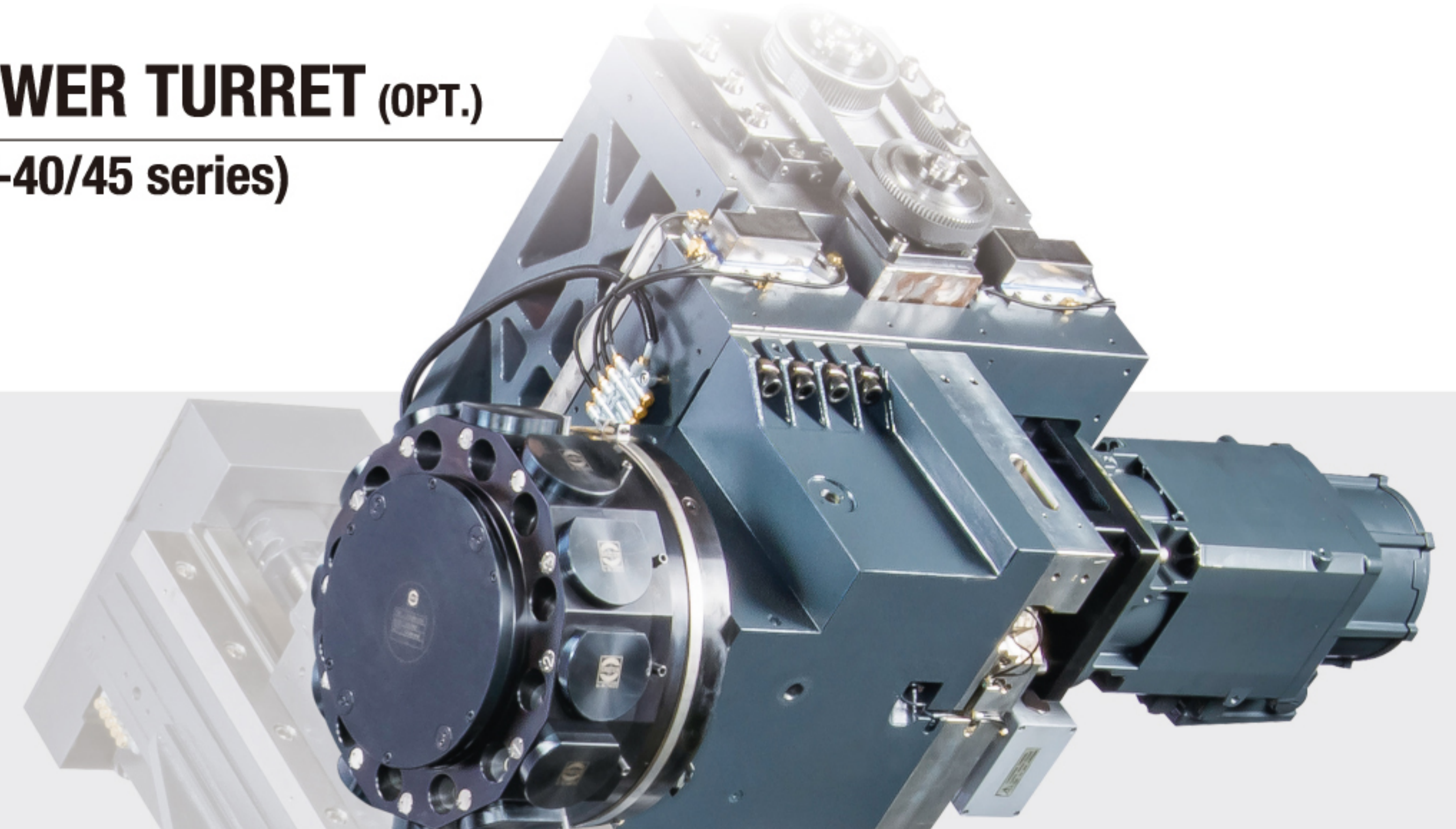


POWER TURRET (OPT.) (TC-35 series)

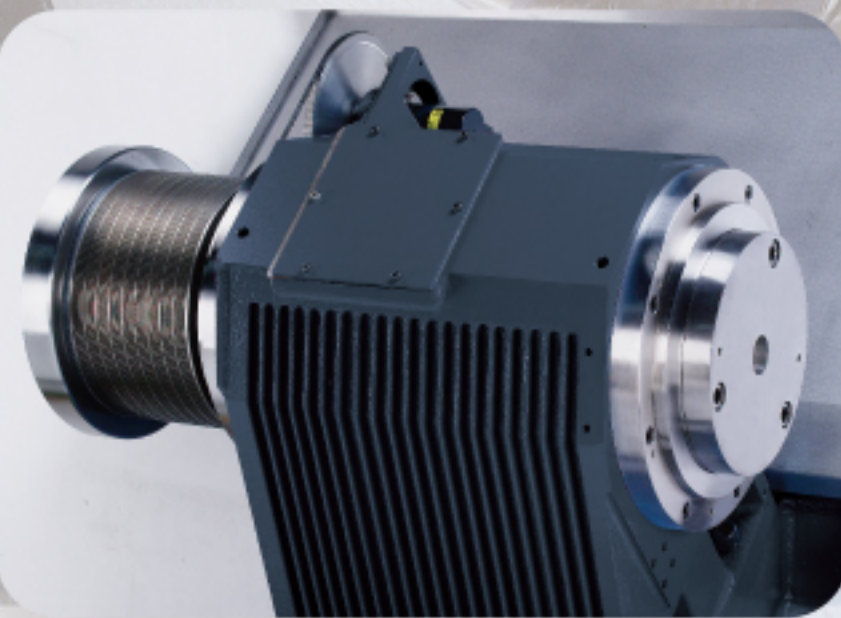
- A. Employs VDI 50 axial turret disk, 12 position power turret. (Two PCD - Inner PCD has 6 stations for milling. Outer PCD has 6 stations for turning.)
- B. High indexing resolution for contour/index control.
- C. Hydraulic disk brake locking provides maximum stability during milling and contouring.



POWER TURRET (OPT.) (TC-40/45 series)

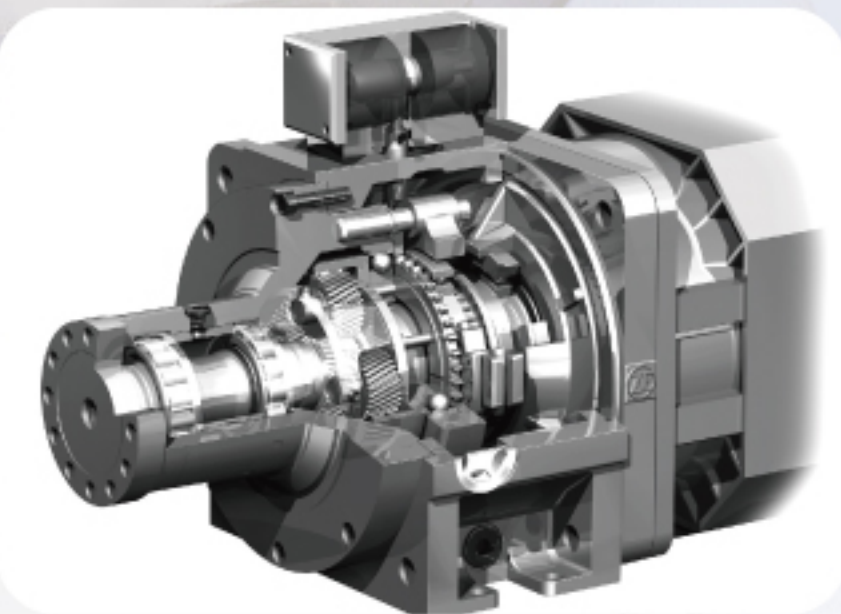


Machine Features:



POWERFUL HI-SPEED AND HI-RIGID SPINDLE (TC-35/40 series)

Spindle supported by cylindrical roller bearings and hi-speed angular thrust bearings marks the spindle faultless and ideal for heavy-duty and high-speed turning.



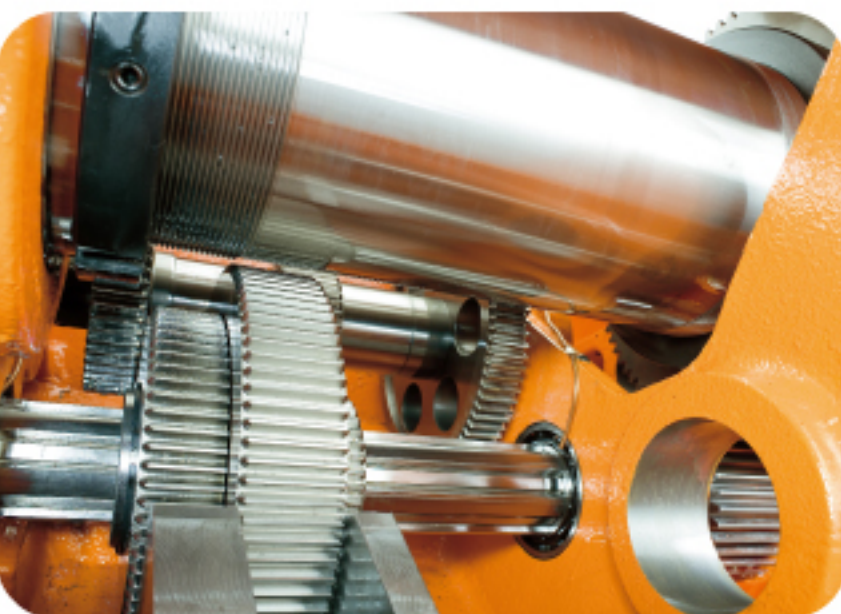
2-STAGES SPEED GEARBOX (TC-35/40 series)

TC-35/TC-40 series equipped with "high precision" stages gearbox (gear ratio 1:4) provides full horsepower cutting from 208-2,500rpm. The maximum cutting torque is 660 N-m.



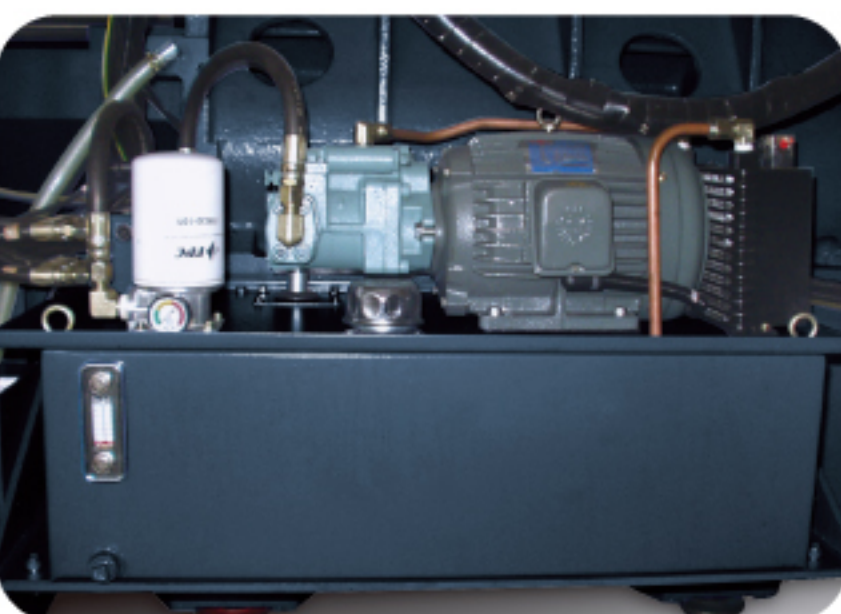
FANUC CNC CONTROLLER

User-friendly operations are designed and more convenient for users.



GEARBOX (TC-45/50 series)

The headstock is with 3 or 4 speed gear head. Gears are precision ground for quiet running.



HYDRAULIC POWER UNIT

The hydraulic power unit employs high quality components for long service life and stable motions. The unit delivers high pressure to the turret, Cs Brake and 3-jaw chuck.



Steady Rest (Opt.)

Designed for support long workpiece.



OIL COOLER OF SPINDLE (TC-45/50 series) (Std.)

Control the oil temperature in spindle gearbox.



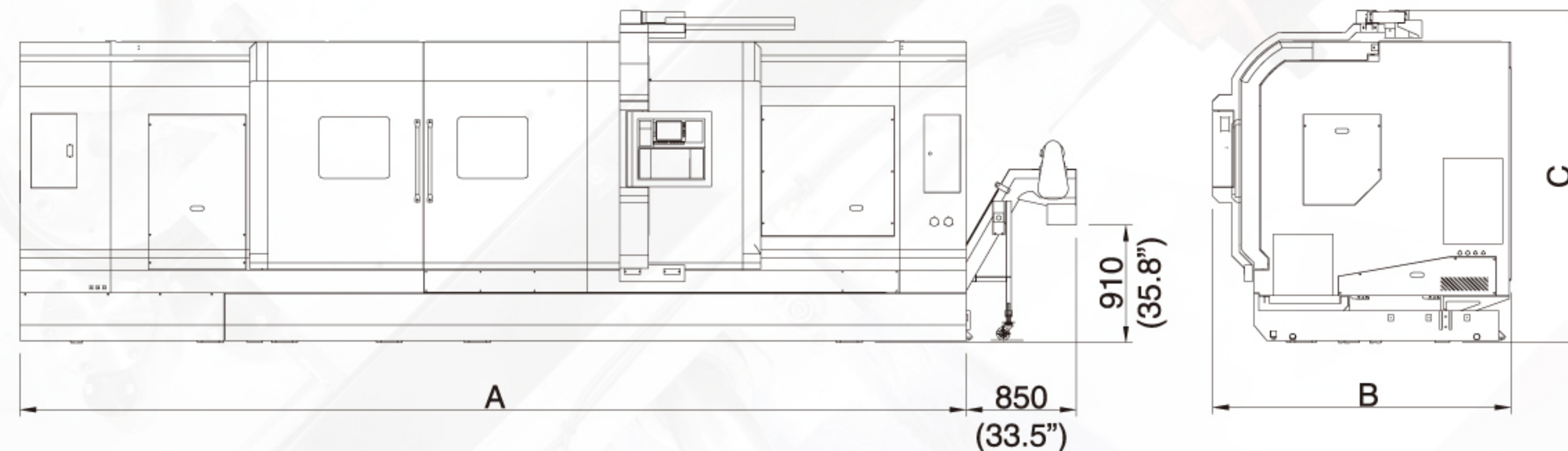
WELL-PLANNED ELECTRICAL CABINET

The entire control circuit in the electrical cabinet is well planned for easy maintenance. Top quality electronic components assure extra stable control performance and long service life.

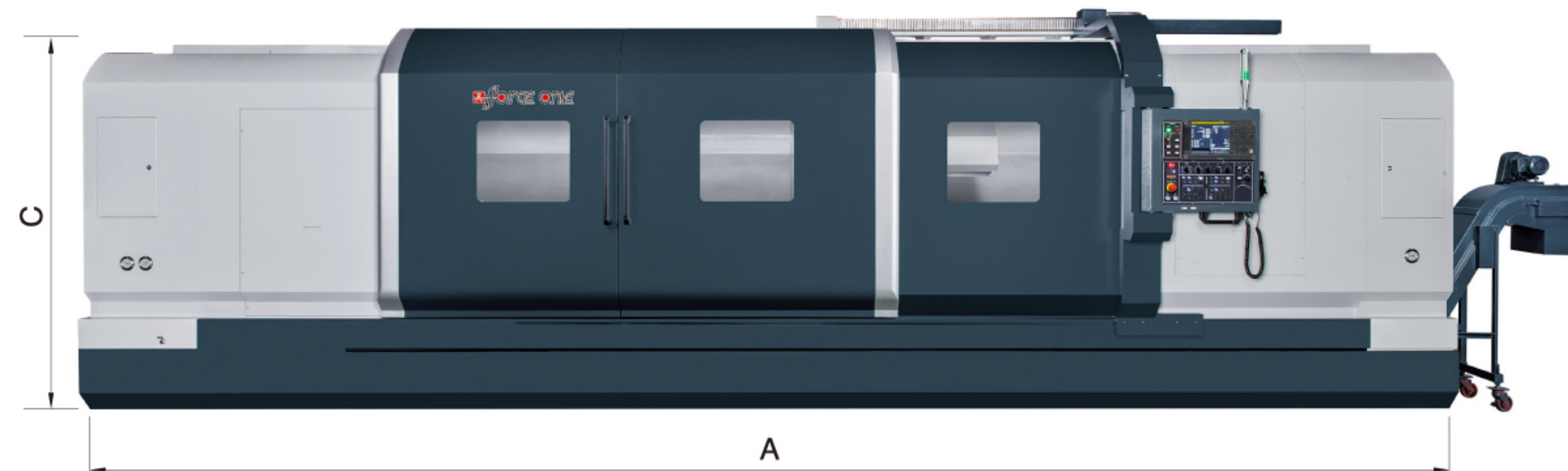
Machine Dimension:

● TC Series

Unit: mm(inch)

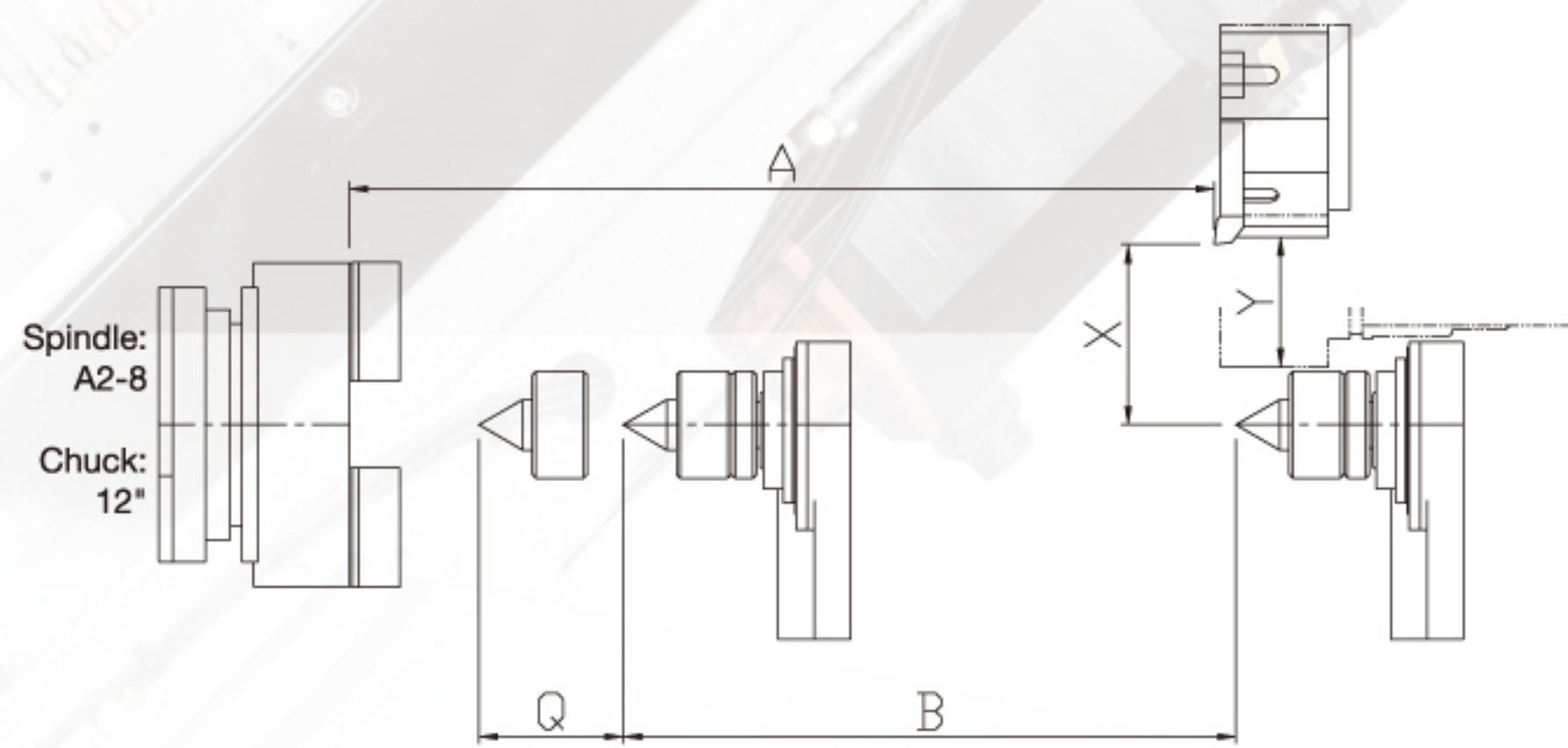
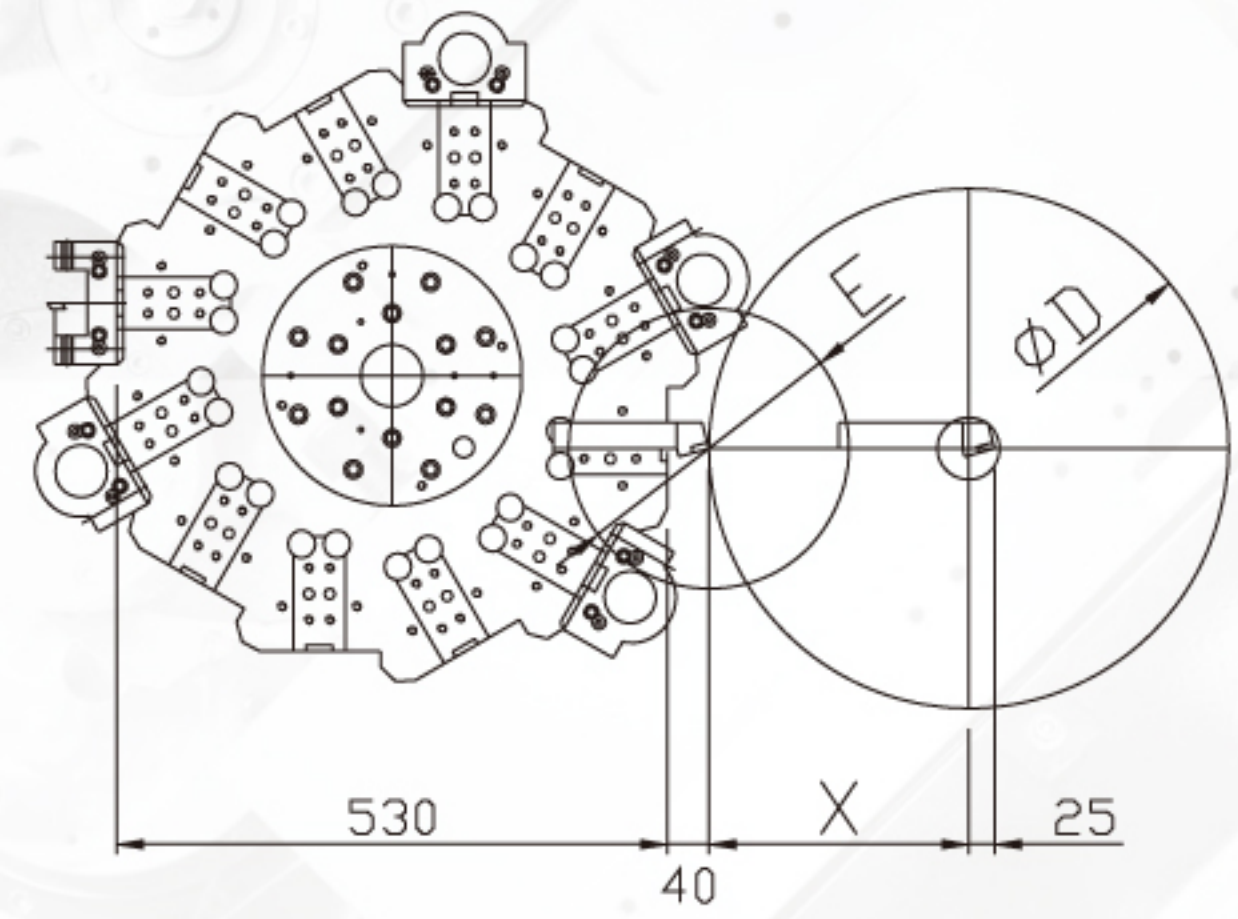


MODEL	LENGTH: A	B	C
TC-3508	5304 (208.81")	2130 (83.85")	2235 (88")
TC-3515	6064 (238.74")		
TC-3523	6824 (268.66")		
TC-3530	7584 (298.58")	2290 (90.16")	2565 (100.98")
TC-4008	5304 (208.81")		
TC-4015	6064 (238.74")	2130 (83.85")	2235 (88")
TC-4023	6824 (268.66")		
TC-4030	7584 (298.58")		
TC-4512	6160 (242.5")	2290 (90.16")	2565 (100.98")
TC-4517	6660 (262.2")		
TC-4522	7160 (281.8")		
TC-4532	8160 (321")	2230 (87.8")	2445 (96.2")
TC-4522	8700 (342.51")		
TC-5022	8700 (342.51")	2390 (94.09")	2775 (109.25")
TC-5032	9700 (381.88")		
TC-5042	10700 (421.25")		
TC-5052	11700 (460.62")	3158 (124.33")	3050 (124.01")
		3318 (130.63")	3380 (133.07")



Working capacity:

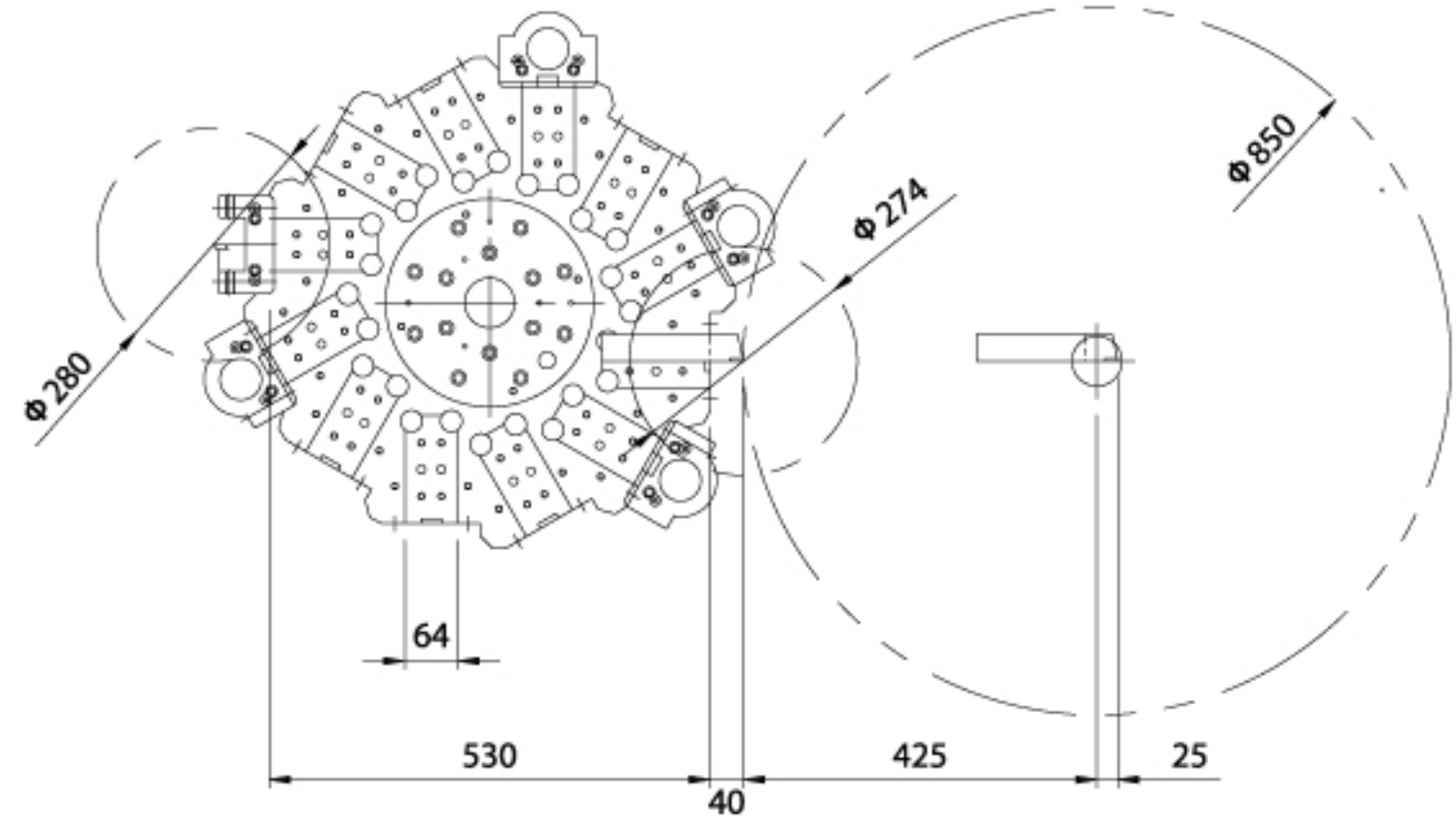
● TC - 35 / 40 Series



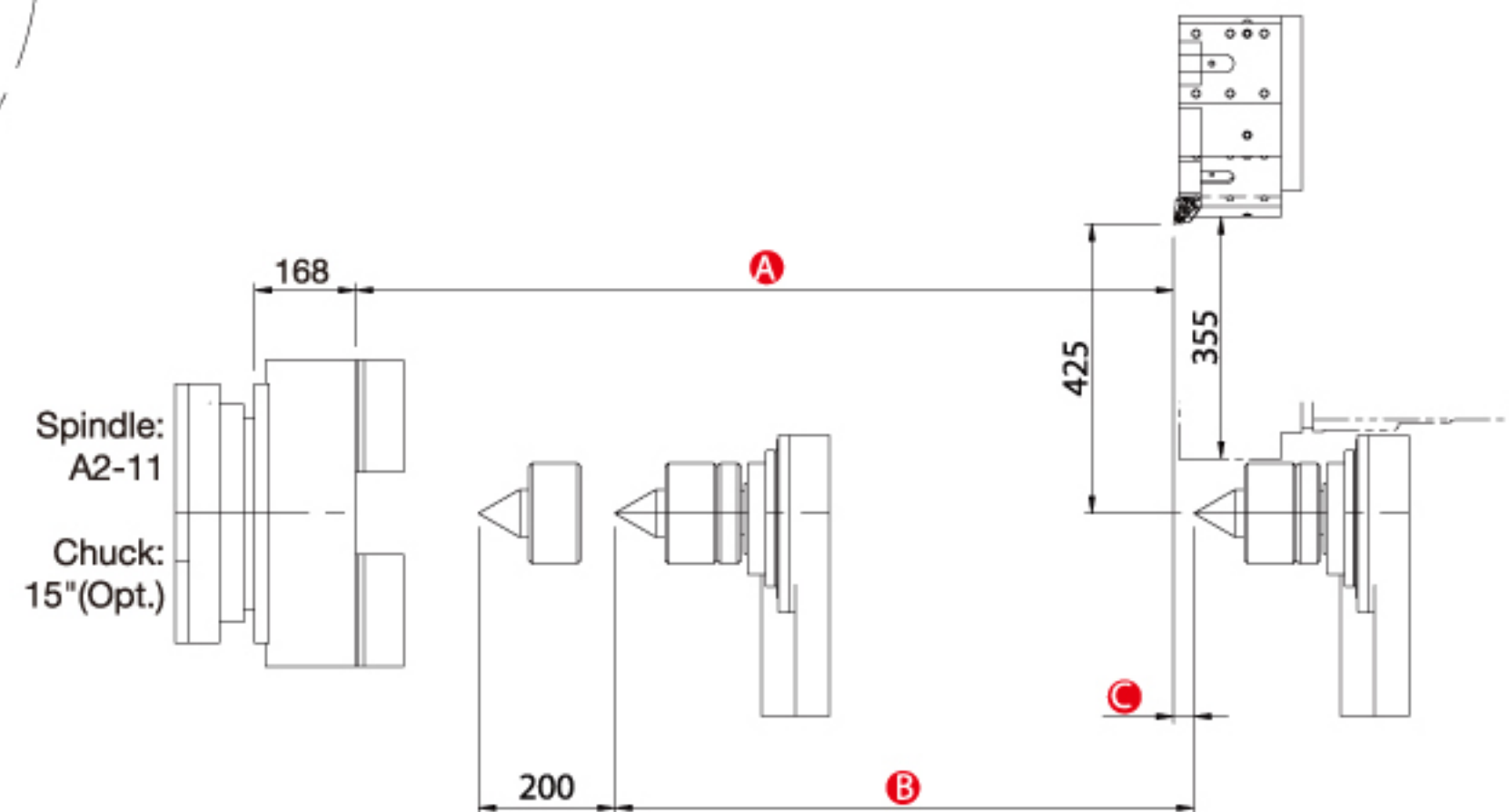
Spec.	D Turning Dia.	X	E (I.D. 40 mm)		E (I.D. 50 mm)	
			10T	12T	10T	12T
TC-35	500	250	345	280	335	270
TC-40	710	355	345	280	335	270

Spec.	A	B	X	Y	Q (Stable Quill + Live Center MT5)
TC-3508	810	650	250	180	100
TC-3515	1570	1410	250	180	100
TC-3523	2330	2170	250	180	100
TC-3530	3090	2930	250	180	100
TC-4008	810	650	355	290	100
TC-4015	1570	1410	355	290	100
TC-4023	2330	2170	355	290	100
TC-4030	3090	2930	355	290	100

● TC - 45 Series

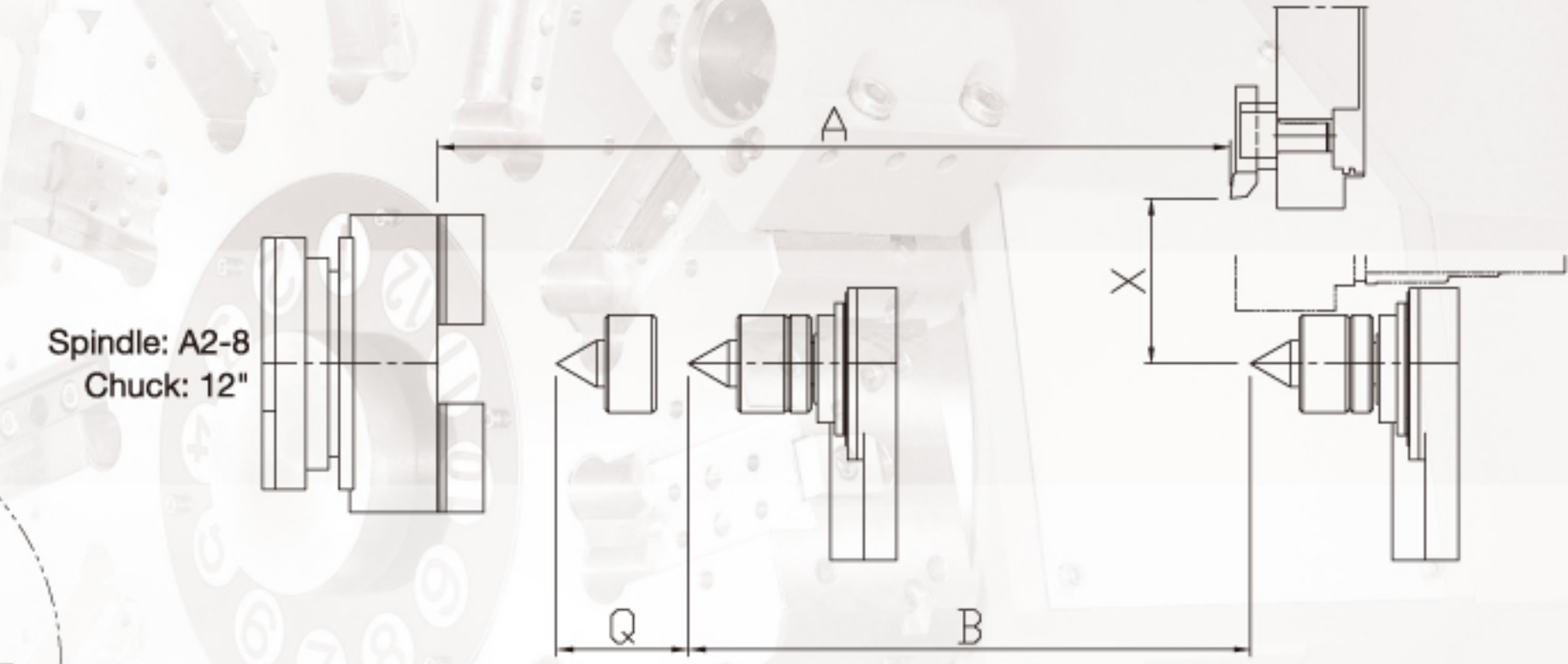
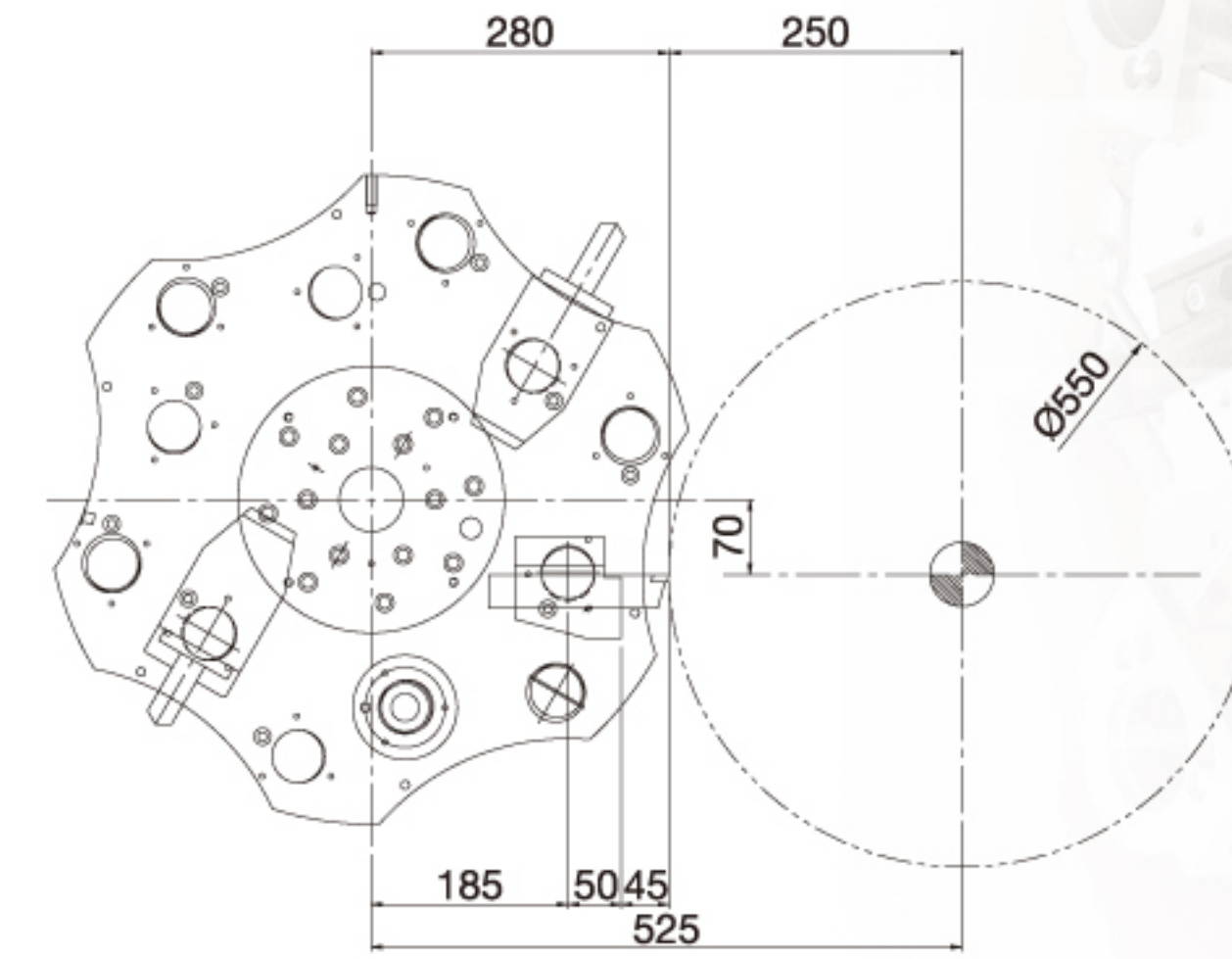


Spec.	A	B	C
TC-4512	1196	950	206
TC-4517	1696	1450	206
TC-4522	2196	1950	206
TC-4532	3156	2910	206
TC-5022	2200	2000	30
TC-5032	3200	3000	30
TC-5042	4200	4000	30
TC-5052	5200	5000	30



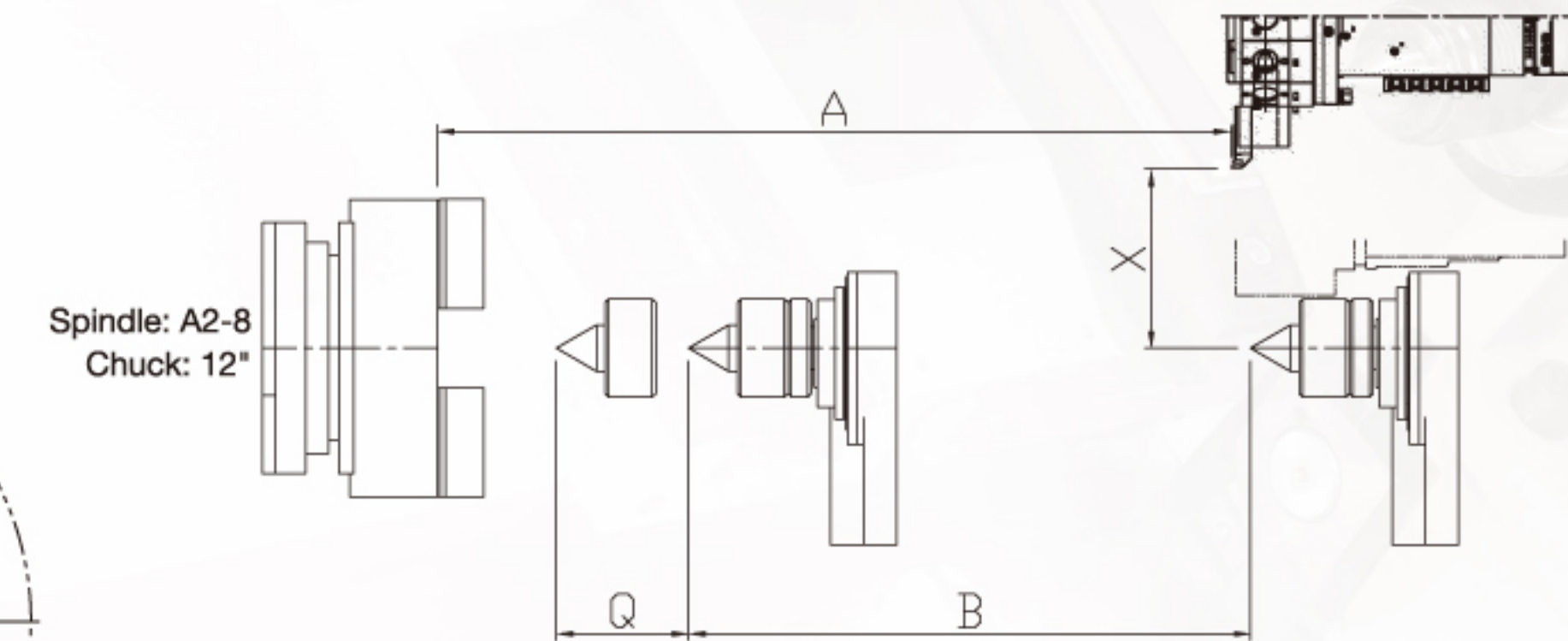
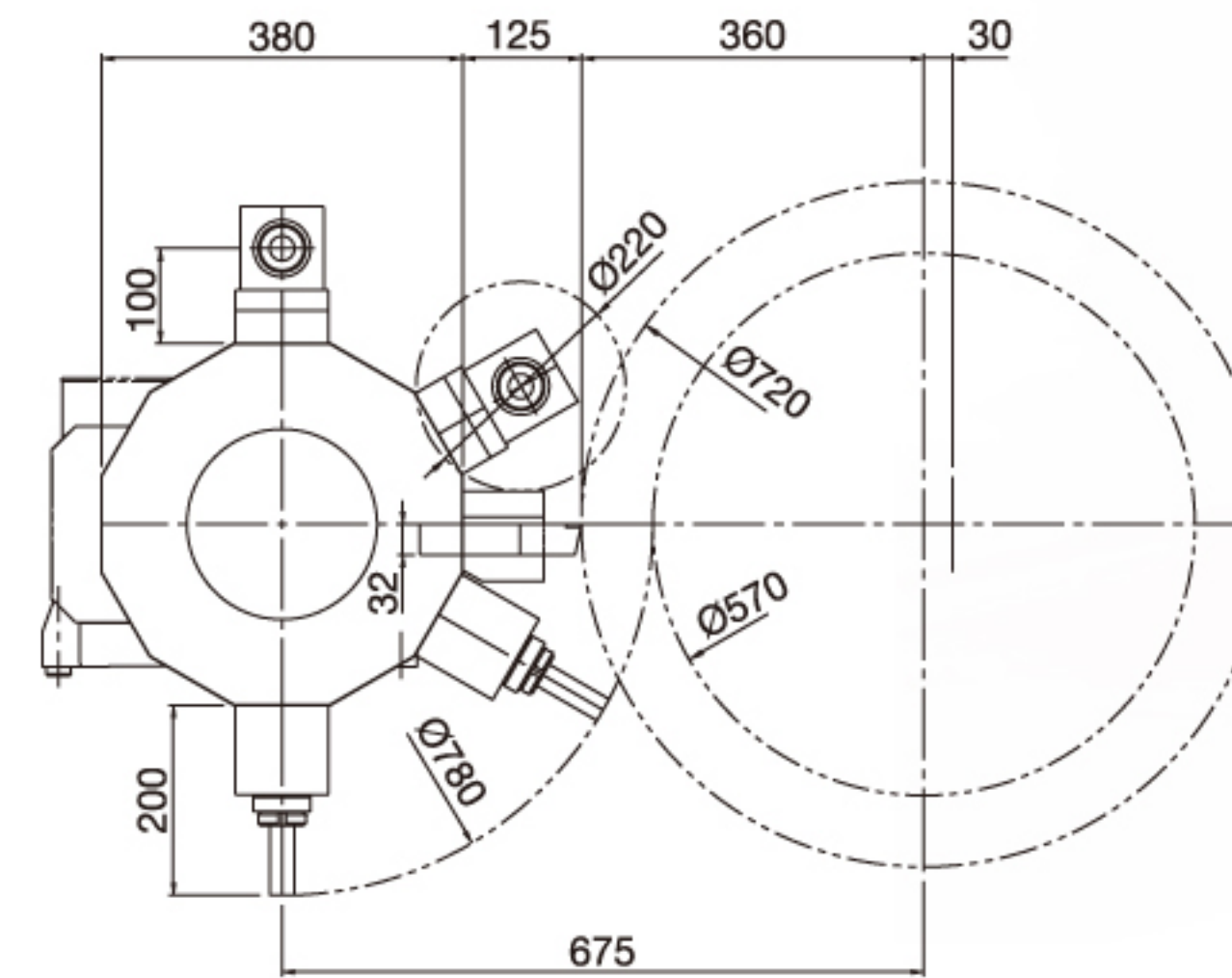
Working capacity:

● TC - 35 with power turret



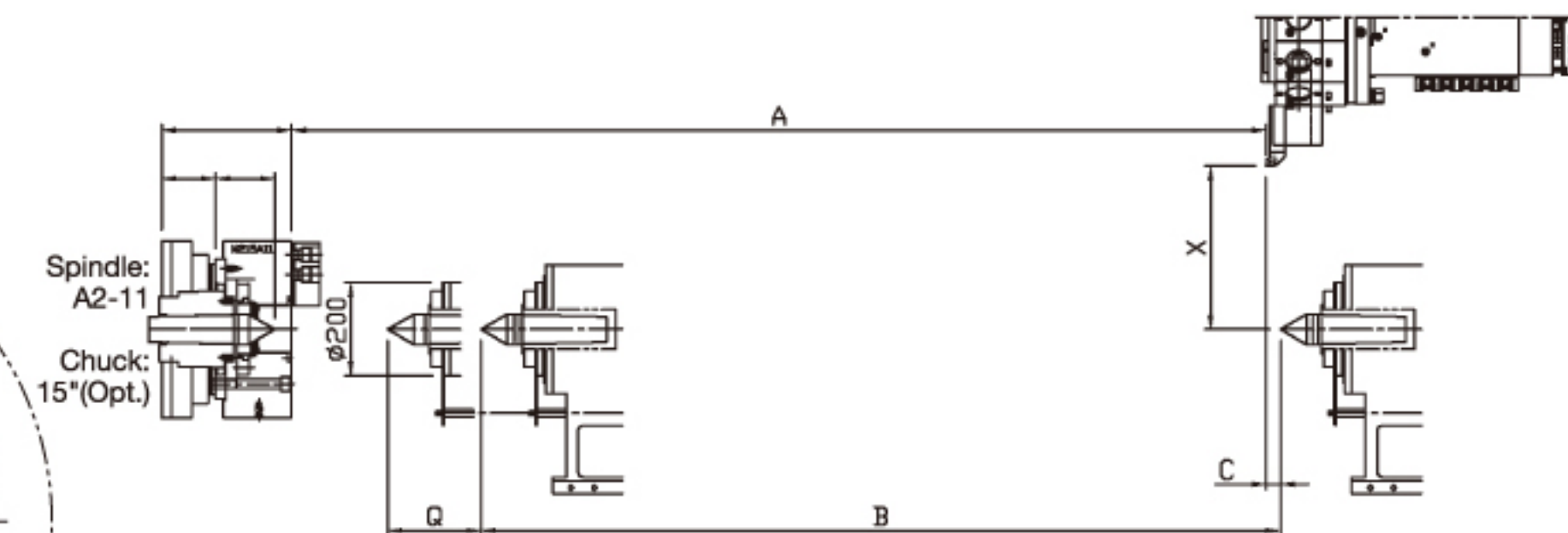
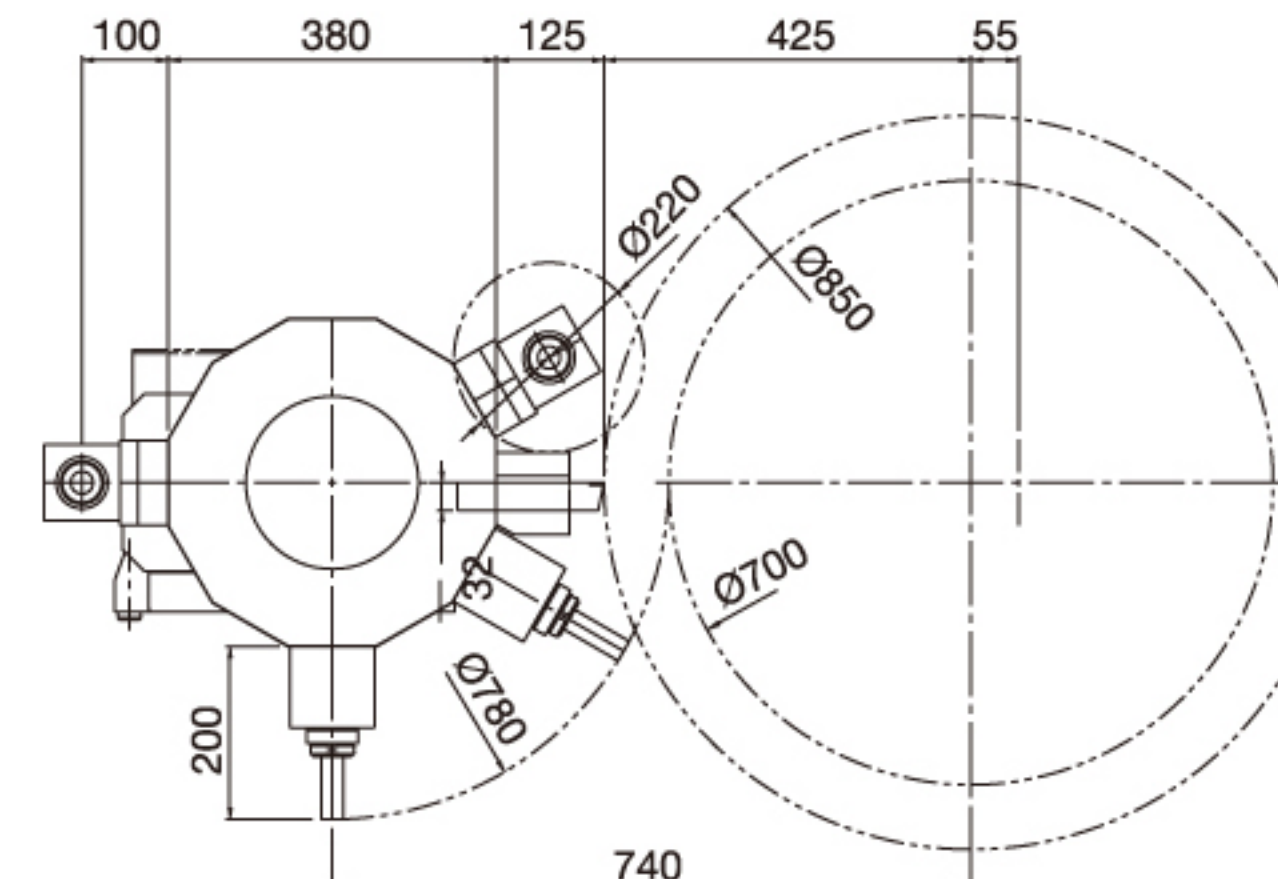
Spec.	A	B	X	Q (Stable Quill + Live Center MT5)	Max. turning dia.	Max. milling dia.
TC-3508	770	600	250	100	550	440
TC-3515	1530	1360	250	100	550	440
TC-3523	2290	2120	250	100	550	440
TC-3530	3050	2880	250	100	550	440

● TC - 40 with power turret



Spec.	A	B	X	Q (Stable Quill + Live Center MT5)	Max. turning dia.	Max. milling dia.
TC-4008	780	650	360	100	720	570
TC-4015	1540	1410	360	100	720	570
TC-4023	2300	2170	360	100	720	570
TC-4030	3060	2930	360	100	720	570

● TC - 45 with power turret



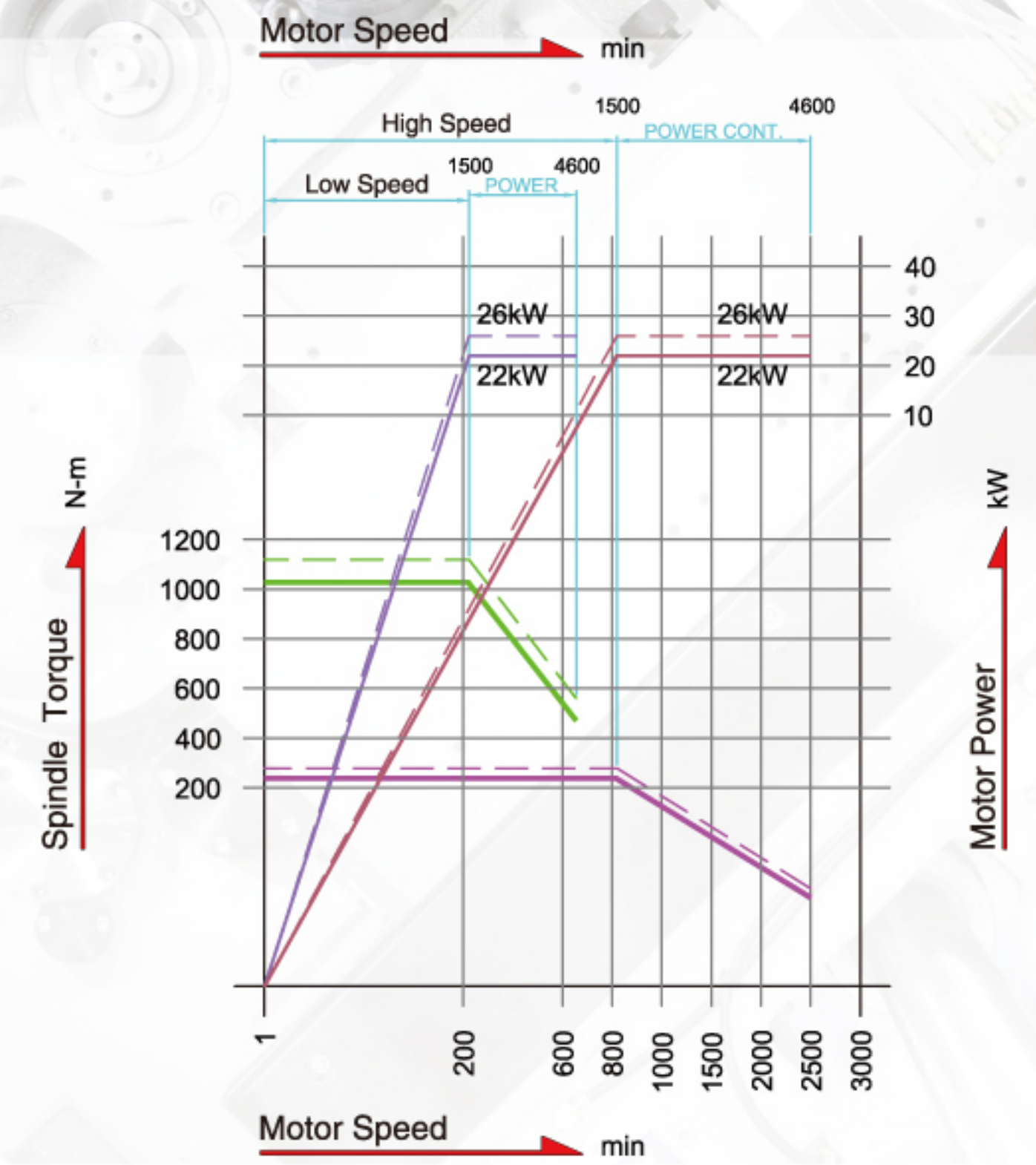
Spec.	A	B	X	Q (Stable Quill + Live Center MT5)	C	Max. turning dia.	Max. milling dia.
TC-4512	1115	765	425	200	100	850	700
TC-4517	1615	1265	425	200	100	850	700
TC-4522	2115	1765	425	200	100	850	700
TC-4532	3075	2725	425	200	100	850	700

⊗ We reserve the right to change above information without prior notice.

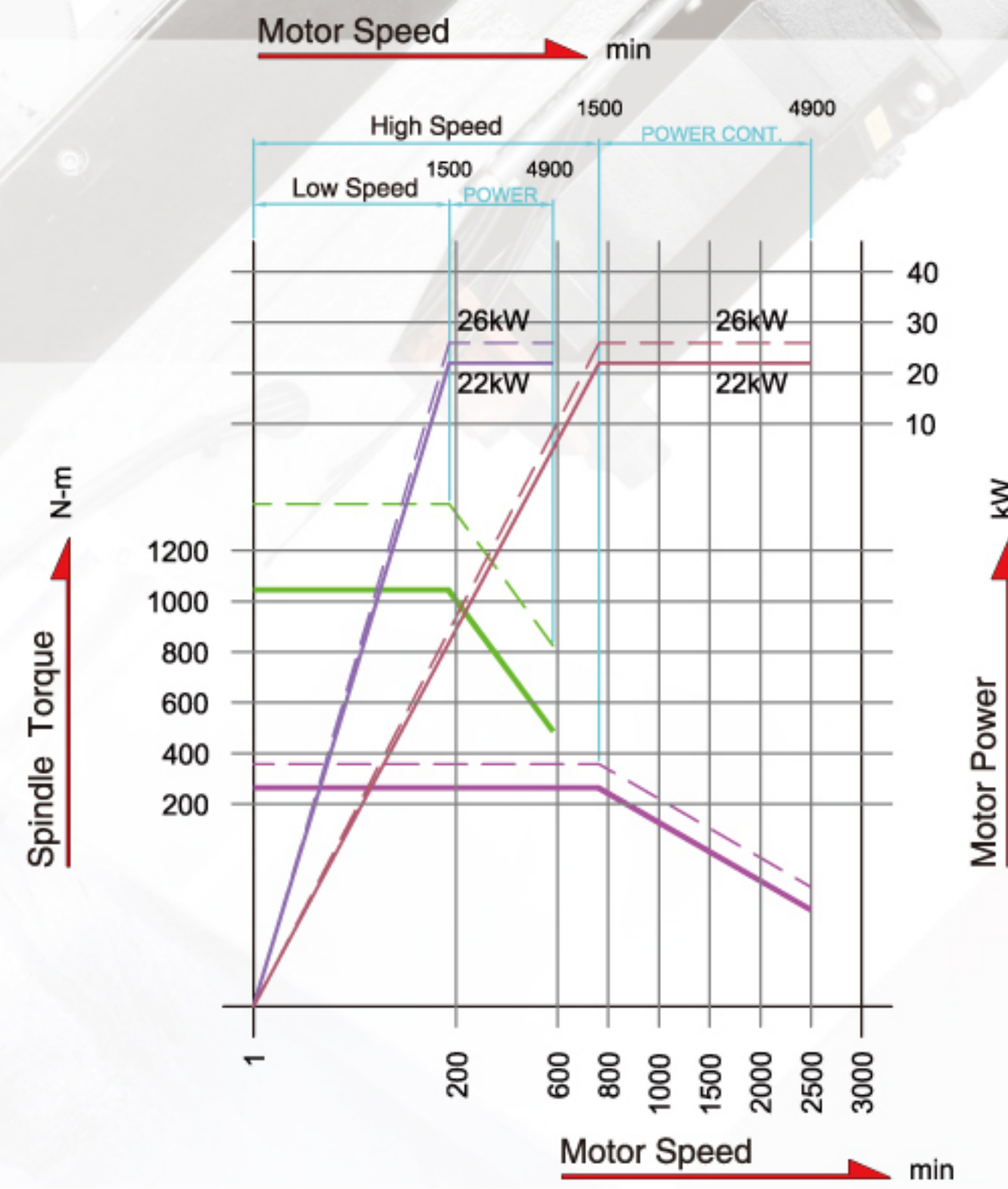
⊗ We reserve the right to change above information without prior notice.

Spindle Output / Torque Diagram:

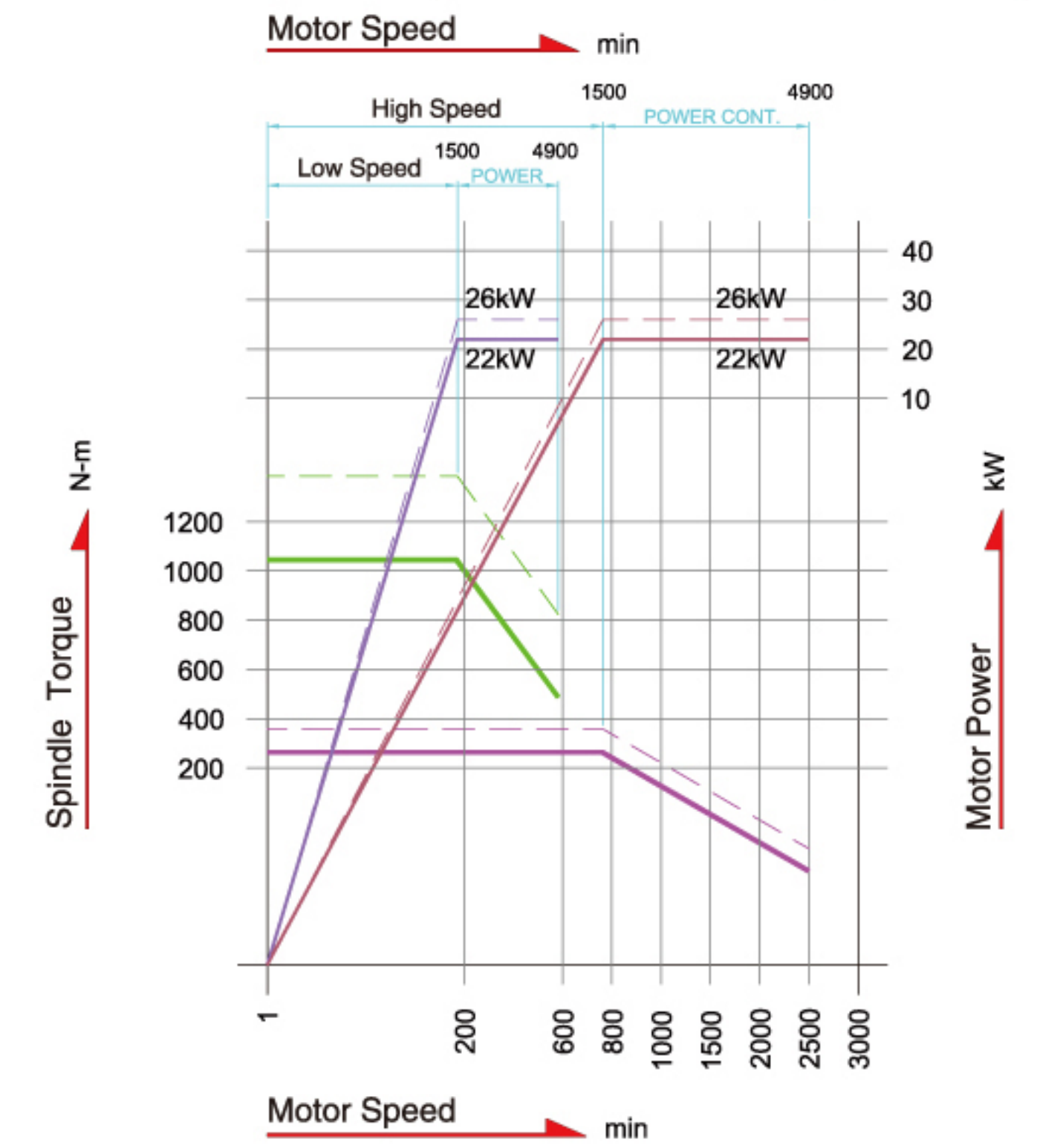
● **TC - 35 / 40** Spindle: A2-8
 Spindle bore: $\varnothing 105\text{mm}$
 Spindle gearbox: 2-speed
 Spindle motor: $\alpha 22i$ (22/26kW)



Spindle: A2-11
 Spindle bore: $\varnothing 131\text{mm}$
 Spindle gearbox: 2-speed
 Spindle motor: $\alpha 22i$ (22/26kW)



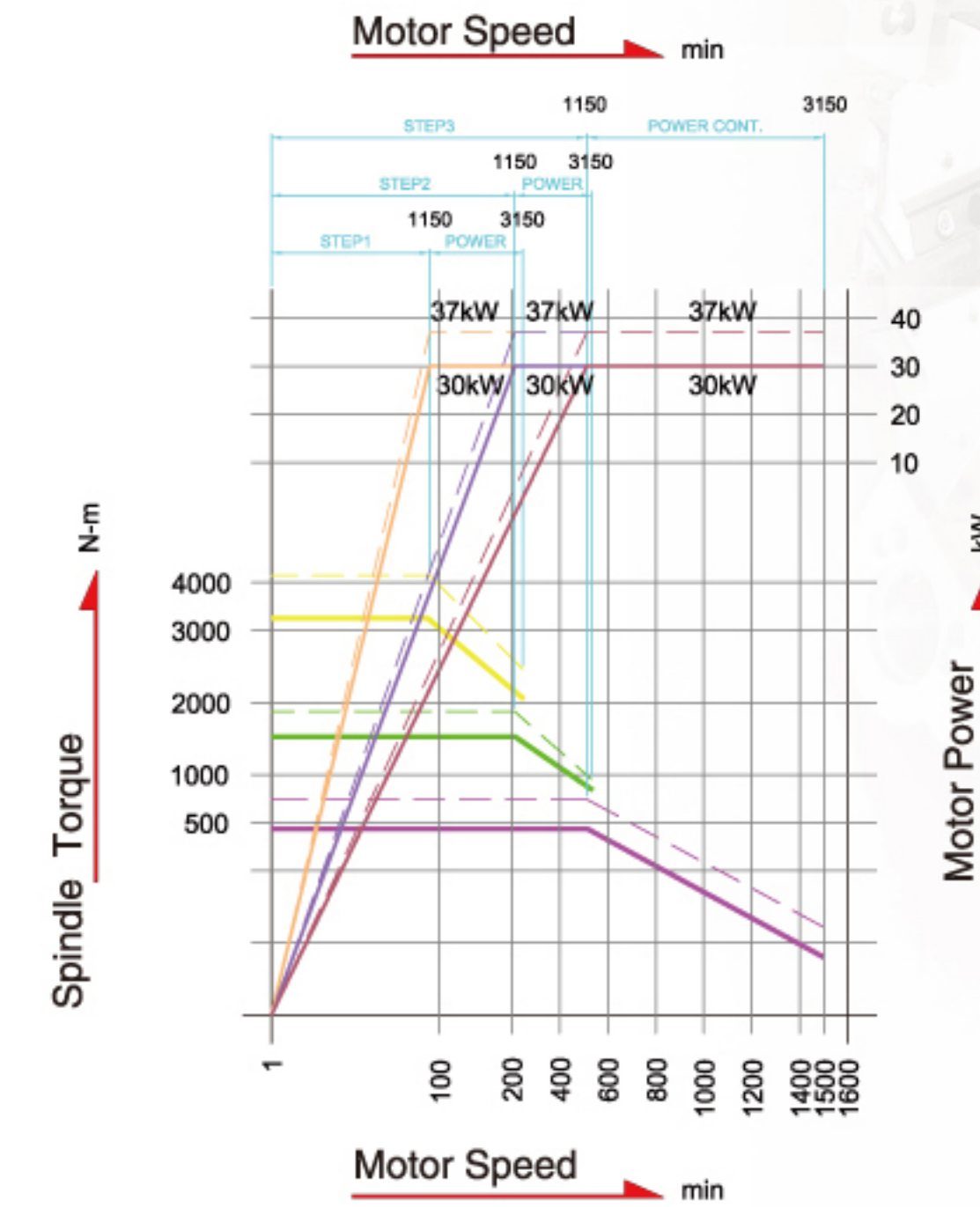
Spindle: A2-15
 Spindle bore: $\varnothing 180\text{mm}$
 Spindle gearbox: 2-speed
 Spindle motor: $\alpha 22i$ (22/26kW)



Spindle Torque Motor Power
 --- Low speed 30min. operation zone
 --- High speed 30min. operation zone
 --- Low speed continuous operation zone
 --- High speed continuous operation zone

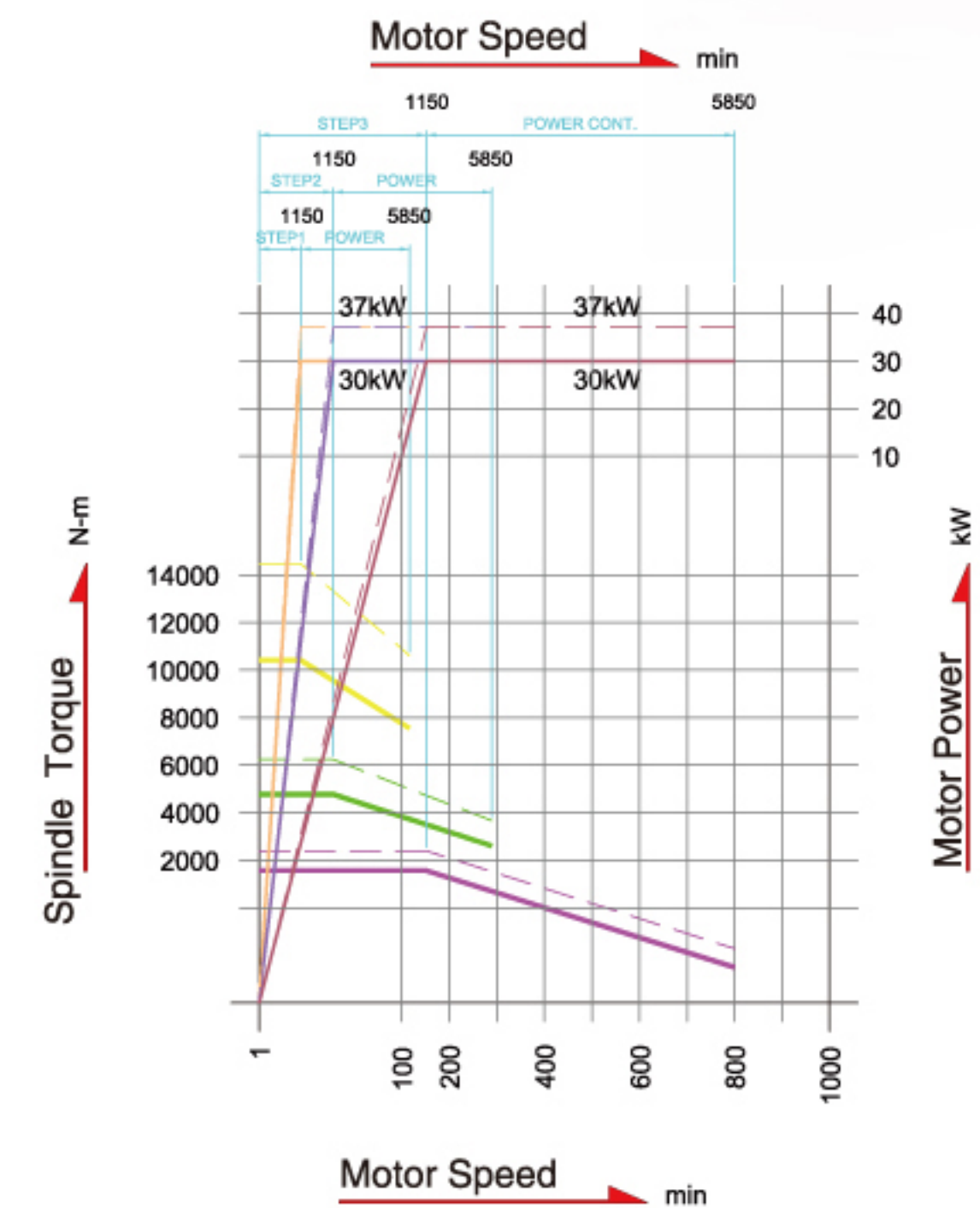
Spindle Output / Torque Diagram:

● **TC - 45** Spindle: A2-11
 Spindle bore: $\varnothing 160\text{mm}$
 Spindle gear head: 3-speed
 Spindle motor: $\alpha 30i$ (30/37kW)



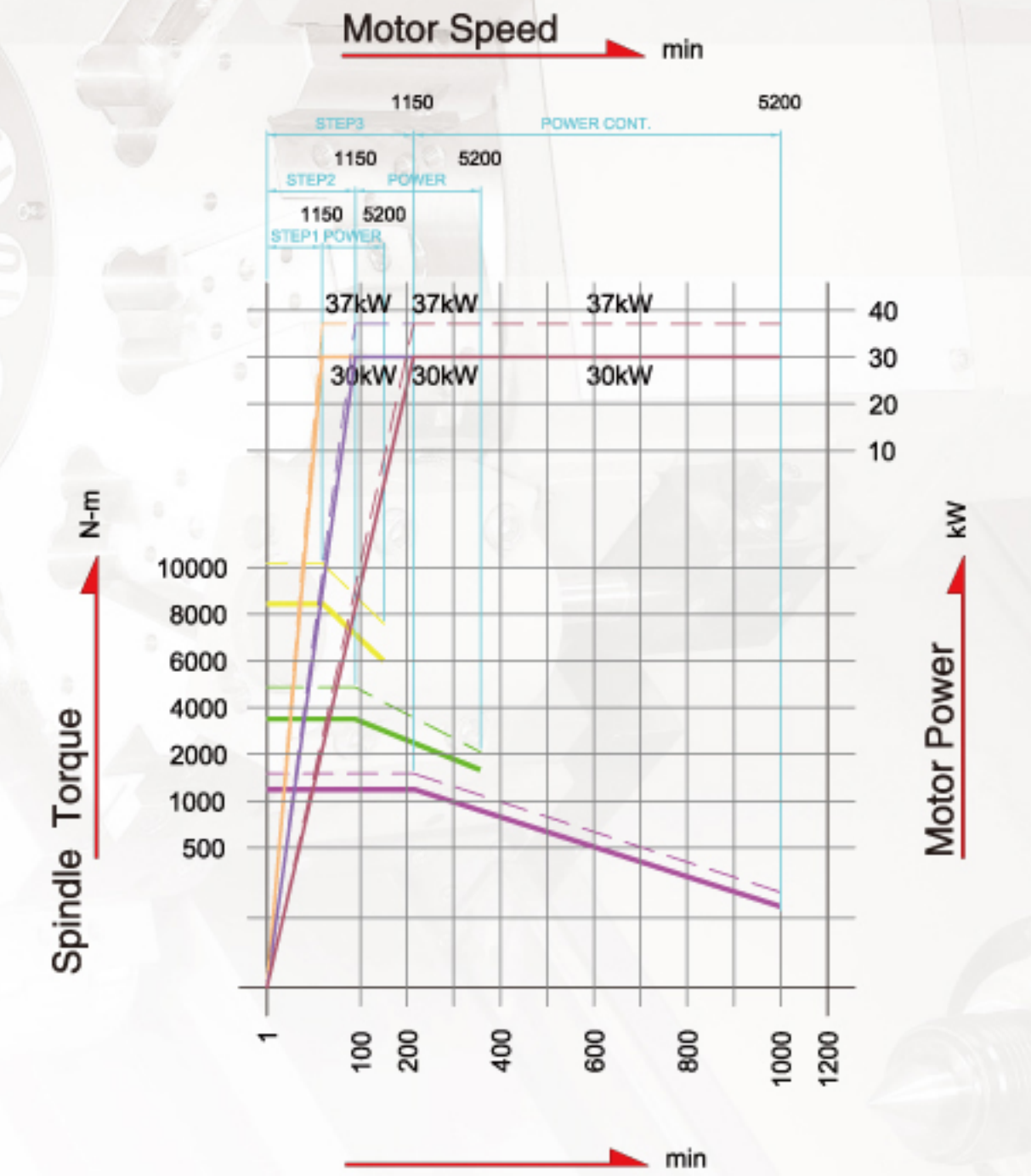
Spindle Torque Motor Power
 --- STEP1-30min. operation zone
 --- STEP2-30min. operation zone
 --- STEP3-30min. operation zone
 --- STEP1-Continuous
 --- STEP2-Continuous
 --- STEP3-Continuous

● **TC - 45** Spindle: A2-20
 Spindle bore: $\varnothing 320\text{mm}$
 Spindle gear head: 3-speed
 Spindle motor: $\alpha 30i$ (30/37kW)



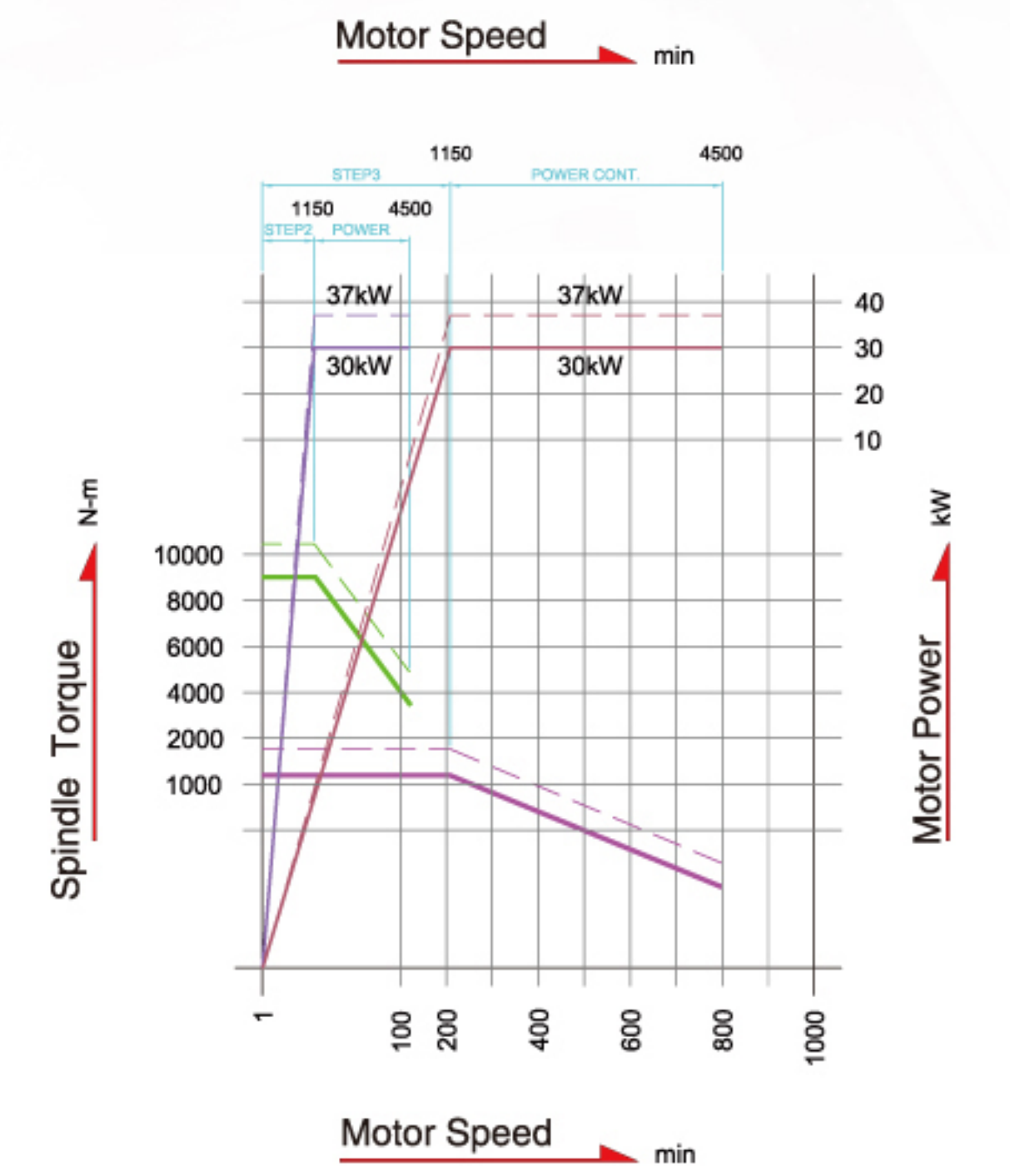
Spindle Torque Motor Power
 --- STEP1-30min. operation zone
 --- STEP2-30min. operation zone
 --- STEP3-30min. operation zone
 --- STEP1-Continuous
 --- STEP2-Continuous
 --- STEP3-Continuous

Spindle: A2-15
 Spindle bore: $\varnothing 230\text{mm}$
 Spindle gear head: 3-speed
 Spindle motor: $\alpha 30i$ (30/37kW)



Spindle Torque Motor Power
 --- STEP1-30min. operation zone
 --- STEP2-30min. operation zone
 --- STEP3-30min. operation zone
 --- STEP1-Continuous
 --- STEP2-Continuous
 --- STEP3-Continuous

Spindle: A2-20
 Spindle bore: $\varnothing 360\text{mm}$
 Spindle gear head: 2-speed
 Spindle motor: $\alpha 30i$ (30/37kW)



Spindle Torque Motor Power
 --- STEP1-30min. operation zone
 --- STEP2-30min. operation zone
 --- STEP1-Continuous
 --- STEP2-Continuous

⊗ We reserve the right to change above information without prior notice.

Specification:

MODEL	Unit	TC-35				TC-40			
		TC-3508	TC-3515	TC-3523	TC-3530	TC-4008	TC-4015	TC-4023	TC-4030
CAPACITY									
Swing over bed	mm(in)	Ø660(25.98)				Ø850(33.45)			
Swing over saddle	mm(in)	Ø480(18.9)				Ø640(25.19)			
Max. turning diameter	mm(in)	Ø500(19.68)				Ø710(27.95)			
Working length	mm(in)	760(29.92)	1520(59.8)	2280(89.76)	3040(119.68)	760(29.92)	1520(59.8)	2280(89.76)	3040(119.68)
SPINDLE									
Spindle nose	ISO	std.: A2-8 / opt.: A2-11				std.: A2-8 / opt.: A2-11 / A2-15			
Spindle bore	mm(in)	std.: Ø105(4.13) / opt.: A2-11: Ø131(5.15), Ø165(6.5)				std.: Ø105(4.13) / opt.: A2-11: Ø131(5.15), Ø165(6.5) / A2-15: Ø180(7.08)			
Bar capacity	mm(in)	std.: Ø89(3.5) / opt.: A2-11: Ø117(4.6), Ø142(5.6)				std.: Ø89(3.5) / opt.: A2-11: Ø117(4.6), Ø142(5.6) / A2-15: Ø166(6.53)			
Spindle speed range	rpm	std.: 2500 / opt.: 2000, 1650				std.: 2500 / opt.: 2000, 1650 / 1300			
Living tools speed	rpm	opt.: 0 ~ 3000				opt.: 0 ~ 3000			
CHUCK									
Chuck size	mm(in)	std.: 12" / opt.: 15" / 15"				std.: 12" / opt.: 15", 15" / 18"			
TURRET									
Tool number	Station	std.: 10 / opt.: 12				std.: 10 / opt.: 12			
O.D. tool shank	mm(in)	std.: 32(1.25) / opt.: 25(1)				std.: 32(1.25) / opt.: 25(1)			
I.D. tool bore	mm(in)	Ø50(2)				Ø50(2)			
X / Z AXIS									
X axis travel	mm(in)	250+25 (9.84+1)				355+25 (13.97+1)			
Z axis travel	mm(in)	860(33.85)	1620(63.78)	2380(93.7)	3140(123.62)	860(33.85)	1620(63.78)	2380(93.7)	3140(123.62)
X axis rapid traverse speed	m/min	12				12			
Z axis rapid traverse speed	m/min	15 / 15 / 15 / 12				15 / 15 / 15 / 10			
Cutting feed rate	mm/min	0.001 ~ 500				0.001 ~ 500			
MOTOR									
Output of spindle motor (continuous)	kW(HP)	α 22i		22(29.5)	α 22i		22(29.5)		
Output of spindle motor (30 min. rating)	kW(HP)			26(34.9)			26(34.9)		
Output of X axis motor	kW(HP)	α 22Bi- 4(5.4)				α 22Bi- 4(5.4)			
Output of Z axis motor	kW(HP)	α 22i- 4(5.4)				α 22i- 4(5.4)			
Output of Hydraulic pump	kW(HP)	2.2(3)				2.2(3)			
Output of Coolant pump	kW(HP)	0.75(1)				0.75(1)			
TAILSTOCK									
Tailstock type	-	Programmable				Programmable			
Tailstock travel	mm(in)	650(25.59)	1410(55.51)	2170(85.43)	2930(115.35)	650(25.59)	1410(55.51)	2170(85.43)	2930(115.35)
Quill type	-	std.: stable / opt: revolve				std.: stable / opt: revolve			
Quill stroke	mm(in)	100(3.94)				100(3.94)			
Quill diameter	mm(in)	std.: Ø110(4.33)				std.: Ø110(4.33) / opt: Ø160(6.29)			
Taper of center	MT	MT.5				MT.5			
TANK CAPACITY									
Hydraulic tank	Litres	80				80			
Coolant tank	Litres	480	580	680	780	480	580	680	780
SIZE									
L x W x H	mm (in)	5304x2130x2235	6064x2130x2235	6824x2130x2235	7584x2290x2565	5304x2130x2235	6064x2130x2235	6824x2130x2235	7584x2290x2565
		208.81x83.85x88	238.74x83.85x88	268.66x83.85x88	298.58x90.16x100.98	208.81x83.85x88	238.74x83.85x88	268.66x83.85x88	298.58x90.16x100.98
MEASUREMENT									
NW/GW	kgs	10030/11140	11300/13160	13700/15700	16300/18700	11500/11950	12100/13700	15600/16800	17900/19200

● All specification, design and characteristics shown on this catalogue are subject to change without prior notice.
 ● Above specification are based on Force One standard turret (refer to direct type), please contact your local Force One dealer for other turret specification needed.

Standard Accessories:

- 2-stages speed gearbox
- Programmable tailstock
- Stable quill and live center for tailstock
- Working lamp
- Heat exchanger of electric box cabinet
- 10 station hydraulic turret
- 6 bar coolant pump
- Chip conveyor and bucket
- Three color alarm light
- Tool box and tool kits
- Lubrication system

Optional Accessories:

- Transformer
- Revolve quill and stable center for tailstock
- Automatic tool setter
- Cs axis and power turret
- Larger hydraulic chuck
- 12 station hydraulic turret
- 60" height chip conveyor and bucket
- CE electric control
- CSA electric control
- Steady rest
- Larger spindle

Specification:

MODEL	Unit	TC-45				TC-50			
		TC-4512	TC-4517	TC-4522	TC-4532	TC-5022	TC-5032	TC-5042	TC-5052
CAPACITY									
Swing over bed	mm(in)	Ø970(38.1)				Ø1100 (43)			
Swing over saddle	mm(in)	Ø720(28.3)				Ø940 (37)			
Max. turning diameter	mm(in)	Ø850(33.4)				Ø1020 (40)			
Distance between center	mm(in)	1130(44.48)	1630(64.17)	2130(83.85)	3090(121.65)	2200 (86.61)	3190 (125.59)	4120 (162.2)	5110 (201.18)
SPINDLE									
Spindle nose	ISO	std.: A2-11 / opt.: A2-15 / A2-20				std.: A2-11 / opt.: A2-15 / A2-20			
Spindle bore	mm(in)	std.: Ø160(6.3) / opt.: A2-15: Ø230(9) / A2-20: Ø320(13), Ø360(14.17)				std.: Ø160(6.3) / opt.: A2-15: Ø230(9) / A2-20: Ø320(13), Ø360(14.17)			
Bar capacity	mm(in)	opt.: A2-11: Ø142(5.6) / A2-15: Ø205(8.07) / A2-20: Depend. on Chuck				opt.: A2-11: Ø142(5.6) / A2-15: Ø205(8.07) / A2-20: Depend. on Chuck			
Spindle speed range	rpm	std.: 1500 / opt.: 700, 550, 450				std.: 1500 / opt.: 700, 550, 450			
Living tools speed	rpm	opt.: 0 ~ 3000				opt.: 0 ~ 3000			
CHUCK									
Chuck size	mm(in)	opt.: 15" / 24"				opt.: 15" / 24"			
TURRET									
Tool number	Station	12				12			
O.D. tool shank	mm(in)	□32(1.25)				□32 (1.25)			
I.D. tool bore	mm(in)	Ø50(2)				Ø50 (2)			
X / Z AXIS									
X axis travel	mm(in)	425+25 (16.7+1)				510 + 25 (20+1)			
Z axis travel	mm(in)	1250(49.21)	1750(68.89)	2250(88.58)	3210(126.37)	2260 (88.97)	3220 (126.77)	4200 (165.35)	5190 (204.33)
X axis rapid traverse speed	m/min	12				12			
Z axis rapid traverse speed	m/min	15 / 15 / 15 / 10				15 / 10 / 8 / 8			
Cutting feed rate	mm/min	0.001 ~ 500				0.001 ~ 500			
MOTOR									
Output of spindle motor (continuous)	kW(HP)	α 30i		30(40)	α 40i		37(49.6)		
Output of spindle motor (30 min. rating)	kW(HP)			37(49)			45(60.3)		
Output of X axis motor	kW(HP)	α 22Bi- 4(5.4)				α 22Bi- 4(5.4)			
Output of Z axis motor	kW(HP)	α 30i- 7(9.4)				α 30i- 7(9.4)			
Output of Hydraulic pump	kW(HP)	3.75(5)				3.75(5)			
Output of Coolant pump	kW(HP)	0.75(1)				0.75(1)			
TAILSTOCK									
Tailstock type	-	Programmable				Programmable			
Tailstock travel	mm(in)	950(37.4)	1450(57)	1950(76.7)	2910(114.56)	1900 (74.8)	2900 (114.17)	3900 (153.54)	4900 (192.91)
Quill type	-	std.: stable / opt: revolve				std.: stable / opt: revolve			
Quill stroke	mm(in)	160(6.3)				200 (7.8)			
Quill diameter	mm(in)	Ø160(6.3)				Ø200 (7.8)			
Taper of center	MT	MT.6				MT.6			
TANK CAPACITY									
Hydraulic tank	Litres	80				80			
Coolant tank	Litres	520	600	670	810	670	810	950	1050
SIZE									
L x W x H	mm (in)	6160x2230x2445	6660x2230x2445	7160x2230x2445	8160x2390x2775	8700x3158x3050	9700x3318x3380	10700x3318x3380	11700x3318x3380
		242.5x87.8x96.2	262.2x87.8x96.2	281.8x87.8x96.2	321x94.09x109.25	(342.51x124.33x124.01)	(381.88x130.63x133.07)	(421.25x130.63x133.07)	(460.62x130.63x133.07)
MEASUREMENT									
NW/GW	kgs	14200/15000	14950/15700	15700/16700	18400/19900	18000 / 20000	23000 / 27000	27000 / 31000	32000 / 36000

● All specification, design and characteristics shown on this catalogue are subject to change without prior notice.
 ● Above specification are based on Force One standard turret (refer to direct type), please contact your local Force One dealer for other turret specification needed.

Standard Accessories:

- Four stages speed gear head (TC-50)
- Three stages speed gear head (TC-45)
- Programmable tailstock
- Stable quill and live center for tailstock
- Working lamp
- Heat exchanger of electric box cabinet
- 12 station hydraulic turret
- 6 bar coolant pump
- Chip conveyor and bucket
- Three color alarm light
- Tool box and tool kits
- Lubrication system
- Spindle oil cooler

Optional Accessories:

- Transformer
- Automatic tool setter
- Cs axis and power turret
- Hydraulic and Manual chuck and bucket
- 60" height chip conveyor and bucket
- CE electric control
- CSA electric control
- Revolve quill and stable center for tailstock
- Steady rest
- Larger spindle

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其餘黑色部份皆為 局部上光

**HEAVY CUTTING
CNC LATHES**
SINGLE SPINDLE/ SINGLE TURRET

TC

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