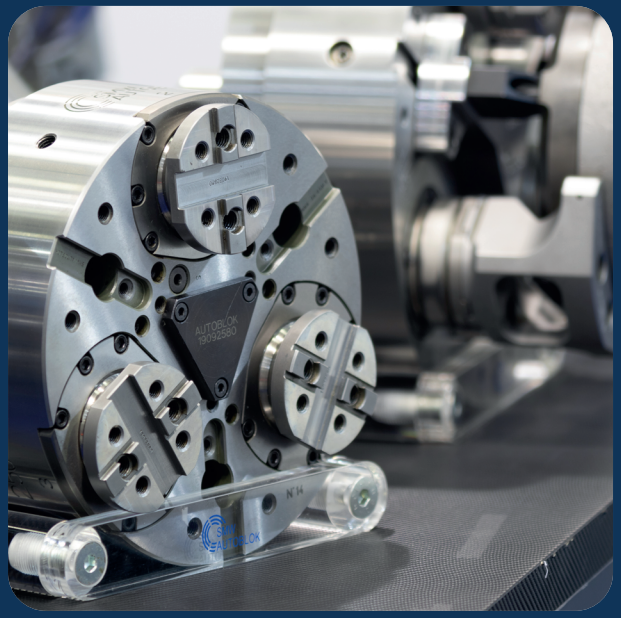
SMW® AUTOBLOK

Always a step ahead

Development & Innovation



QUALITY:

SMW-AUTOBLOK is solidly focused on quality and innovative solutions. Our company offer a wide range of products designed for high accuracy and highest repeatibility.

FLEXIBILITY:

Our products are developed for custom solutions and a set-up time equal to 0. A dedicated Applications Office work with customers to analyze their problems and develop solutions that meet their specific requirements.

PROOFLINE:

Our **PROOFLINE®** products are fully sealed and have the important advantage to need low maintenance. Our recently-introduced products, including the AP® and NT® series of sealed chucks, BP-style through-hole chuc ks, and self-centering IEPD/C® chucks for thin-walled pieces have high productivity thanks to the reduced down-time for maintenance and a costance of gripping force allowing a more constant process accuracy and quality.

INDUSTRY 4.0:

We approach Industry 4.0, with clampings increasingly being used in automated workflows, requiring greater precision and workpieces with ever-smaller tolerances. Our F500 E-motion range received a Industry 4.0 Award. This same commitment to innovation is what enables us to redefine what energy efficiency can be. The wireless transmission of energy and signals is a massive advantage, with clamping force able to be adjusted without unclamping the workpiece, allowing its position and grip to remain unchanged.

E-MOTION:

E-motion refers to our elecro-mechanical actuation flange of standard power chucks on millturn centers, with wireless power and sensoric transfer via an inductive coupler and both electronical and mechanical safety systems. We operate the strictest checks and controls on our production lines and in particular on our new range of e-Motion products.

SMW-Autoblok Group

SMW-AUTOBLOK group was born in 1942 and in the mid-'60 it began the expansion to foreign markets, mainly France, Germany, England and USA.

In 1993 the breakthrough, with the acquisition of GERMAN SMW SPANNSYSTEME Gmbh, with his cutting-edge products and his strong position in Germany, USA and Japan markets. Born that way the SMW-AUTOBLOK mark, the operation that permits to widen significantly the range of products and to exceed the "critical mass" for further worldwide expansion.

The combination of these premier manufacturing entities created the SMW-AUTOBLOK group and resulted in the most extensive product line of high-quality workholding and advance solutions for machine tools in the world.

Our production facilities are in Caprie-Italy, Meckenbeuren-Germany, Nottingham UK, Wheeling IL-USA, Shanghai-China and Pune-India.

The global corporate organization SMW-AUTOBLOK achieved substantial global growth by providing a superior level of customer service and technical support for our application driven product line.

Covering more than 55 countries with 18 direct subsidiaries and specialized agents. With Mario Pinto, specialized in live tooling and OML in advanced static workholding the SMW-AUTOBLOK has achieved an unmatched position in the worldwide market.

Furthermore, thanks to the acquisition of Tobler, our range of SMW-AUTOBLOK expanding standard and special mandrels becomes the most complete on the market.

The recent acquisition of Tecnomagnete with the new company foundation MAG-Autoblok Tecnomagnete completes the range of clamping systems for machine tools with high-tech magnetic systems.

Always a step ahead

Our history

1942

FOUNDATION

Autoblok is founded in Turin in 1942 by Domenico Bronzino. In 1946 the company begins making chucks, at first manual and later power operated.

1950-1960

Autoblok moves from a workshop to fully-industrialized production. The company becomes the leading maker of chucks in Italy. The 1960s sees Autoblok's first sales of its products abroad, at first through agencies and later through joint ventures and branches in France, Germany, the UK, Sweden, Brazil and Japan.

1970-1974

Autoblok opens branches in strategic European markets: France, UK and Germany.

AUTOBLOK OPENS IN THE USA

With the advent of new numerical control technologies, Autoblok can develop ever more sophisticated and specialized products, even reaching the USA at a time when very few Italian companies managed that feat" - Walter Bronzino Autoblok greatly widens its horizons by entering a new market where the rules are very different from its home country.

PULL-DOWN

CHUCKS

To meet the highly sophisticated requirements of the customers, Autoblok developed the new generation of pull-down chucks with floating jaws.

SHAFT CHUCKS

WITH FACE DRIVER

For turning shafts fully finished in only one operation, Autoblok developed the GSA chucks with retractable jaws and central face-driver

INDEXING

CHUCKS. Innovative technology and Autoblok's strong commitment to R&D enables us to design and implement new and more advanced products. That's why our motto is "always a step ahead". The AXN chuck is indexable and guarantees automatic positioning of the workpiece on multiple axes, be they 4x90°, 8x45°, 6x60° or 3x120°.

1993

ACQUISITION OF THE GERMAN SMW SPANNSYSTEME

The union of SMW brand and AUTOBLOK brand has given rise to SMW-AUTOBLOK brand, recognized worldwide as an index of reliability and high quality.

1990S

SMW-AUTOBLOK enters the oil & gas sector with its BIG BORE® products, conquering a position in an industry that will quickly become one of the group's predominant sectors, together with automotive. SMW-AUTOBLOK's products for the oil market are state-of-the-art for oil extraction companies.

ACQUISITION OF OML AND MARIO PINTO

With this strategic acquisition SMW-AUTOBLOK consolidates its presence on the Italian market. Mario Pinto is a leading maker of manual chucks and is building an excellent market position with its live-tooling equipment and toolholders. OML is a leading maker in Italy of static products, vises, and blocks.

2005-2015

SMW-AUTOBLOK opens branch offices in Mexico, China, India, Russia, Spain, Taiwan, the Czech Republic and Sweden, establishing a strong presence in these important markets.

2017

AWARD: 100 SITES OF INDUSTRY 4.0

In Stuttgart, SMW-AUTOBLOK receives a major award from the state of Baden-Wuerttemberg for being one of the "100 Sites of Industry 4.0".

ACQUISITION OF TELBROOK

Innovative highly sophisticated workholding systems have been developed by Telbrook for manufacturing aircraft engine parts in the UK. With the acquisition of Telbrook these important technologies are now available to all SMW-AUTOBLOK customers around the world.

2018

NEW PRODUCTION SEAT IN ITALY

SMW-AUTOBLOK opens a new production seat in Petacciato- Italy for static workholding.

2018

NEW SUBSIDIARY

Established SMW-AUTOBLOK Poland.

2019

NEW SUBSIDIARY

Established SMW-AUTOBLOK Turkey.

2020

TOBLER ACQUISITION

The range of SMW-AUTOBLOK expanding standard and special mandrels becomes the most complete on the workpieces clamping market.

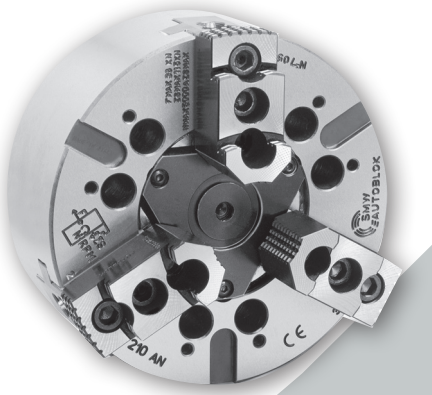
2021

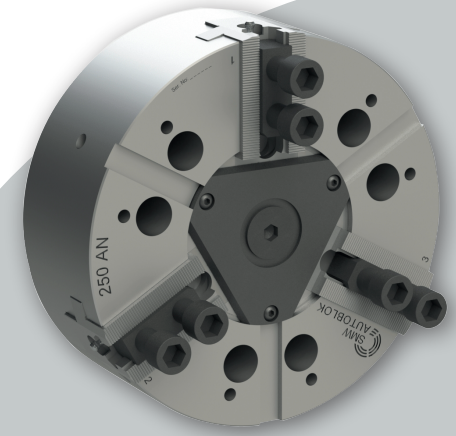
NEW COMPANY FOUNDATION MAG-AUTOBLOK TECNOMAGNETE. The recent acquisition of Tecnomagnete by the SMW-Autoblok group completes the range of clamping systems for machine tools with high-tech magnetic systems.

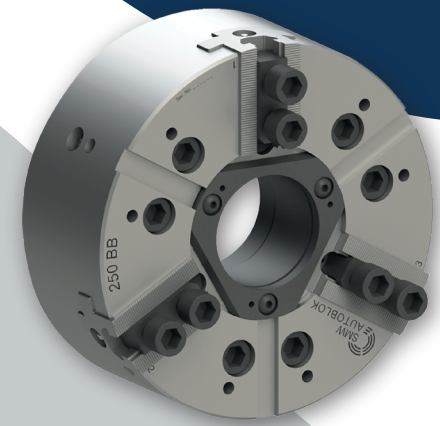
SMW AUTOBLOK

WE CALL THEM STANDARD, YOU WILL CALL THEM EXCEPTIONAL

STANDARD POWER CHUCKS | 2022







Standard power chucks

Contents

Brief history of automatic chucks

- Automatic self-centering chucks were invented in World War II by Americans with the aim of producing more weapons and increasing the consistency of accuracy of their components
- With the Marshall plan numerous American machines with the new self-centering chucks arrived in Europe
- European manufacturers of manual chucks, started to produce spare parts by copying automatic chucks in every way
- Consequence is that in Europe the standard serrations has become that in Inches (1/16”x90° and 3/32”x90°)
- In Japan they started later and followed international standards using the metric system, which had standardized serrations similar to the inch ones, but with pitch in mm (1,5mmx60° e 3mmx60°)
- The arrival of Japanese and later Taiwanese, Korean and Chinese machines brought Metric-serrated chucks to our markets
- In America the market became «metric» (since no US std chuck manufacturer lasted longer than the ‘80s), while in Europe the chuck manufacturers defended their market and still now the large majority of std chuck sold are Inch-serrated
- While that Asian chuck manufacturers produce only Metric chucks, SMW-Autoblok produces both Metric and Inch chucks and this has allowed us to protect our main markets and to attack the «metric» markets
- Asian manufacturers have all copied the first Japanese manufacturer: Kitagawa
- SMW-Autoblok has gone the “European” way, and our self-centering chucks are therefore profoundly different from the Asian ones with which we share the market

Standard automatic chuck market / I

- SMW-Autoblok is the largest European manufacturer of standard power chucks, and it replaced German manufacturers such as Forkardt and Rohm back in the 1990s
- SMW-Autoblok has the capacity to produce 3,000 standard chucks per month, but due to market conditions it sells and produces less: 1,000-1,200 per month
- We estimate that Rohm, Europe's second largest manufacturer, produces the same amount, but in one year!
- The majority of chucks are sold as first mount to lathe manufacturers at very low prices because of competition from Asian countries and because of the contractual power of lathe manufacturers
- The chuck makers battle to be chosen as chuckers on new lathes not for the makers' market per se (energy-consuming and unprofitable), but for the far more profitable replacement market
- Self-centers are subject to wear and therefore need to be replaced over a period of time that depends greatly on various factors, but normally varies between 5-10 years
- Customers who receive a machine with a 3-jaw chuck often buy different chucks (e.g., the 2/4 jaw, larger or smaller) and normally choose the brand of chuck mounted on the machine or their usual brand
- The customers who receive a new machine are many and of difficult to reach directly: that is why the role of dealers in this market is very important!

Standard automatic chuck market /II

- **Standard lathes delivered to end customers arrive with a standard chuck, but this is almost always not the correct clamping tool for the customer's needs**
- **Our role and that of our salespeople and dealers is to persuade the customer to analyze their needs and figure out which product is the best fit, this:**
  - Before the purchase of the machine = the customer can put the right chuck in the price of the machine
  - After machine purchase = customer will need to replace the chuck, immediately or as the current one is worn out
- **Also, if the customer receives an Asian machine with an Asian chuck, we have to support it to possibly replace it with an SMW-Autoblok one**
- **Many customers who receive a machine equipped with a standard power chuck:**
  - Do small production batches and need the flexibility of a quick-change chuck
  - Need to clamp with a number of jaws other than 3 : 2, 4, 6 jaws, 2+2, 3+3 etc.
  - Need a larger or smaller chuck than the standard
  - Have contamination problems and should use a «proofline» system
  - Need collet chucks to alternate with or completely replace the power chuck
  - They need equipment changing systems to quickly replace the above tools
- **In all these cases, the expertise of our salespeople and dealers can enable us to sell many chucks**

Standard chucks always?

- Standard power chucks, invented 80 years ago, have had no major evolutions in all these years
- Being low-margin products and sold primarily and thanks to lathe manufacturers (who buy for price rather than performance), chuck manufacturers have invested in production improvements rather than technical
- Machines and cutting tools, on the other hand, have had radical improvements
- On a modern machine with modern tools, it is often the clamping system that limits performance
- SOLUTION: go for modern chucks that compared to standard ones provide higher accuracy/speed/productivity and less maintenance
- This is one more argument for the end customer: “You don’t want to work with 80-year-old technology, do you?!”
- In the SMW-Autoblok catalog, we find specific chucks for every customer need

- Despite this, many customers continue to buy standard chucks for reasons of economy and habit
- Then there is the undoubted fact that despite being an old-fashioned product, the standard chuck allows the majority of parts to be machined with good flexibility and precision: everything can be done even if often not in the best way...

HAVING SAID THAT, LET’S LOOK AT OUR STANDARD CHUCKS ADVANTAGES COMPARED WITH ASIAN ONES

Exceptional, why? Materials and treatments

- **All SMW-Autoblok chucks (up to Ø 315) are:**
  - Are made in case-hardening material (18NiCrMo5 or 20MnCr5) with strenght after HT > 1000 N/mm²
  - Case hardening depth 1 mm to 60-62 HRc on the entire body
  - After grinding remaining hardness 58-60 HRc

- **The Kitagawa chucks are:**
  - Made in flame-hardening (C45/C48) with strenght after HT > 500 N/mm²
  - Flame hardening only on the master jaws and wedge guides
  - Rest of body not hardened and therefore less resistant to deformation and wear

- **Other Asian manufacturers, having copied Kitagawa pedestrianly, have similar materials and treatments or, for price reasons, even lower quality**

- **The difference in materials and treatments demonstrates the different philosophy between a company that focuses on quality even on standard products and competitors that focus on price as their main commercial argument.**

Exceptional, why? Technical characteristics

- **Autoblok standard chucks are made for European customers:**
  - Casting/forging techniques in Europe are good, but not as good as in Japan
  - Therefore, power chucks for the European market (and most of the other markets) need:
    - longer jaw stroke to compensate for dimensional errors on blanks
    - large clamping force for higher chip removal required due to inaccurate blanks

- **Kitagawa chucks were designed for Japanese customers:**
  - Casting/forging techniques in Japan are excellent: blanks are dimensionally and aesthetically close to finished
  - For this, power chucks need:
    - short stroke since the blanks are very constant and close to the finite size
    - low clamping force for small chip removal due to very precise blanks

- **The various Asian manufacturers come from countries where casting/forging techniques are far from those in Japan, but having copied Kitagawa, they offer products with the same characteristics.**

Exceptional, why? Performances

- **Having a high clamping force allows for high performances:**
  - Higher rotational/cutting speed
  - Greater residual clamping force at high speed
  - Due to higher clamping force at each speed ⟶ higher torque transmitted to the workpiece
    ⟶ higher chip removal
    ⟶ higher productivity

Exceptional, why? Versatility

- **Having a longer jaw stroke allows for greater versatility:**
  - Easier to clamp parts with inconsistent rough dimensions
  - Ease in placing hard or soft jaws on the serrations

Exceptional, why? Conclusions

- **The advantages over the competition are essentially for the quality of the material and treatment of the body and the superior performances**

- **The quality of the material and treatments is reflected in:**
  - Increased accuracy given less body deformation during clamping
  - Increased service life of the chuck (*)

- **Superior performance allows for:**
  - Increased productivity
  - Greater versatility of use

(*) IT IS VERY IMPORTANT TO SAY THAT, ESPECIALLY IN THE LAST 5/10 YEARS, THE PRICE BATTLE AT LATHE MANUFACTURERS HAS LED OUR ASIAN COMPETITORS TO LOWER THE COST (AND THUS THE QUALITY) OF MATERIALS AND TREATMENTS, AND WE SEE A FASTER DETERIORATION/WEAR OF STANDARD CHUCKS THAT LAST THE WARRANTY TIME OR LITTLE MORE. SMW-AUTOBLOK HAS NEVER CHANGED MATERIALS AND TREATMENTS AND HAS NEVER COMPETED FOR PURE PRICE, BUT FOCUSING PRIMARILY ON QUALITY.

Comparison standard chucks: SMW-Autoblok vs Kitagawa vs Samchully

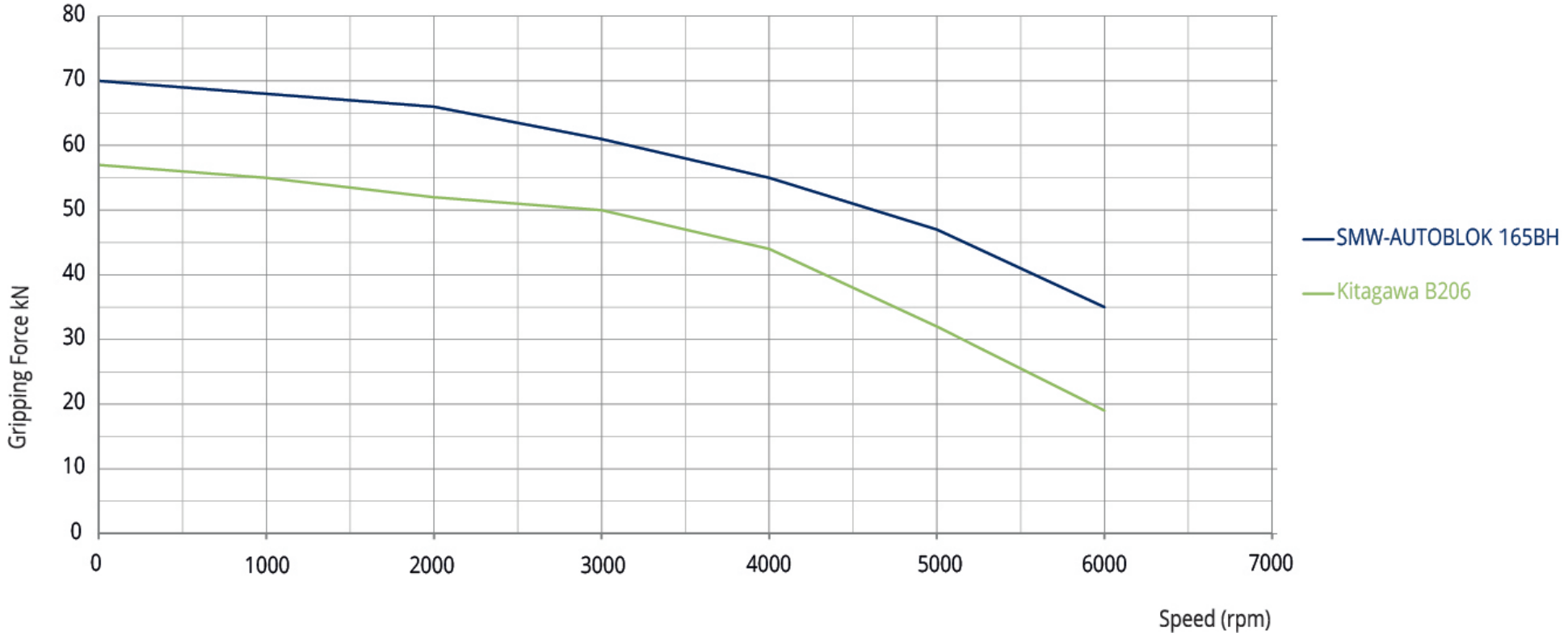
MAKER	CHUCK	EXT. Ø	INT. Ø	F/Σ (*)	MAX SPEED	Jaw stroke
		mm	mm	kN	rpm (1)	mm
KITAGAWA	B206	169	45	22/57	6000 (5300)	2,75
SAMCHULLY	HS-06	169	46	22/57	6000 (5700)	2,75
SMW-AUTOBLOK	165 BH	165	46	25/70	6000	3,2
KITAGAWA	BB206	170	53	20/58,5	6000 (5100)	2,75
SAMCHULLY	MH-206	175	52	24,7/57,3	6000 (5500)	3,2
SMW-AUTOBLOK	175 BB	175	56	25/70	6000	3,2
KITAGAWA	B208	210	52	34,8/86	5000 (4300)	3,7
SAMCHULLY	HS-08	210	52	34,8/86	5000 (4800)	3,7
SMW-AUTOBLOK	210 BH	210	52	38/110	5000	4
KITAGAWA	BB208	210	66	32/99	5000 (4500)	3,7
SAMCHULLY	MH-208	210	66	36,4/87	5000 (4700)	3,7
SMW-AUTOBLOK	210 BB	210	66	38/110	5000	4
KITAGAWA	B210	254	75	43/111	4200 (3600)	4,4
SAMCHULLY	HS-10	254	77	43/111	4200 (3800)	4,4
SMW-AUTOBLOK	250 BH	254	66	50/145	4000	5
SMW-AUTOBLOK	250 BB	254	78	50/145	4000	5

(*) : F = max. draw pull / Σ = max gripping force

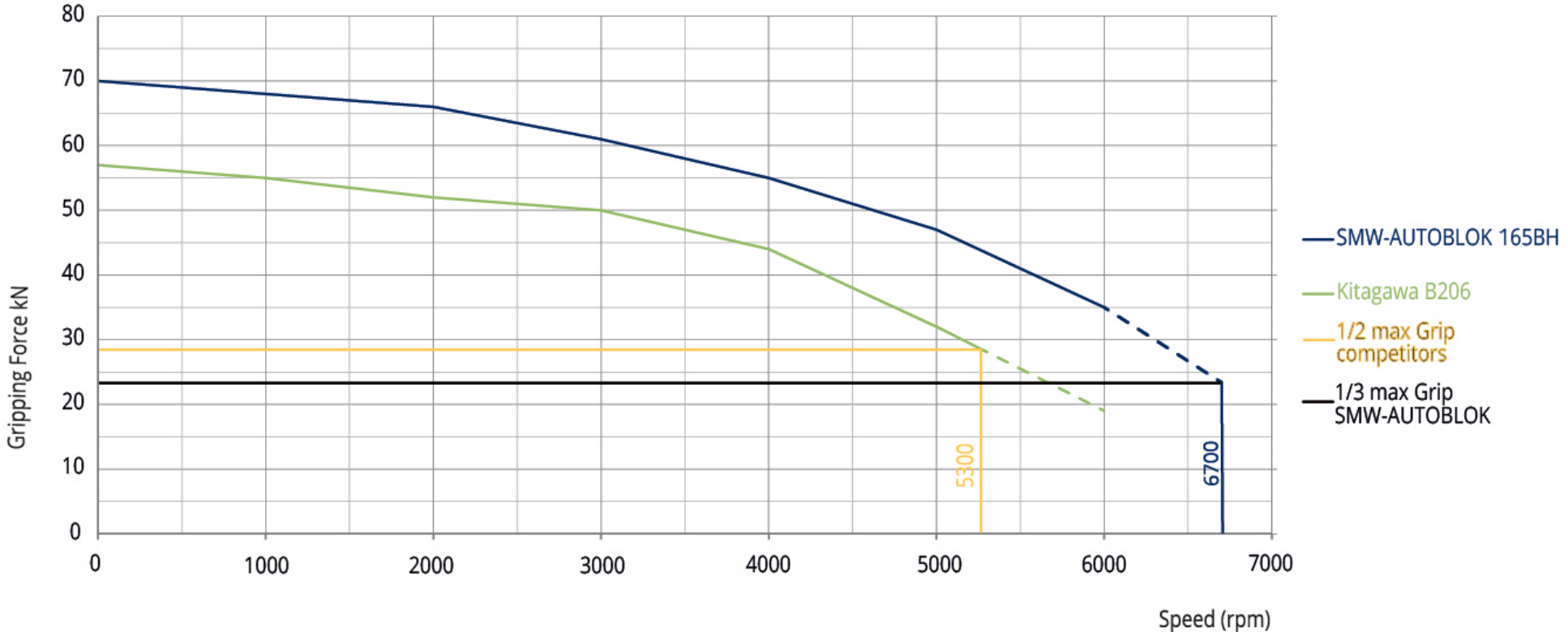
(1) : all Kitagawa STD chucks have the max speed calculated at 1/3 of the maximum gripping force instead of 1/2 as all SMW-Autoblok chucks. In parentesis is shown the max speed calculated with the higher safety as the SMW-Autoblok chucks.

MAKER	CHUCK	EXT. Ø	INT. Ø	F/Σ (*)	MAX SPEED	Jaw stroke
		mm	mm	kN	rpm (1)	mm
KITAGAWA	BB210	254	81	48,8/126	4500 (3600)	4,4
SAMCHULLY	MH-210	254	82	49/126,6	4500 (4000)	4,4
SMW-AUTOBLOK	255BB	255	82	50/145	4000	5
KITAGAWA	B212	304	91	55/144	3300 (2800)	5,3
SAMCHULLY	HS-12	304	91	55/144	3300 (3000)	5,3
SMW-AUTOBLOK	315 BH	315	95	60/175	3200	5
KITAGAWA	B15	380	117,5	71/180	2500 (2100)	5,3
KITAGAWA	B215	380	100	98/249	2800 (2300)	5,3
SAMCHULLY	HCH-15	381	117,5	71/180	2500 (2400)	5,3
SMW-AUTOBLOK	400 BH	400	118	70/210	2500	6,5
KITAGAWA	B18	450	117,5	71/180	2000 (1800)	5,3
SAMCHULLY	HCH-18	450	117,5	71/180	2000 (1900)	5,3
SMW-AUTOBLOK	450 BH	450	118	70/210	2000	6,5
KITAGAWA	B21	530	140	90/234	1700 (1400)	5,3
SAMCHULLY	HCH-21	530	140	90/234	1700 (1600)	5,3
SMW-AUTOBLOK	500 BH	510	180	70/210	1800	6,5
KITAGAWA	B24	610	165	90/234	1400 (1250)	5,3
SAMCHULLY	HCH-24	610	165	90/234	1400 (1300)	5,3
SMW-AUTOBLOK	630 BH	630	230	100/240	1500	9

Dynamic grip force diagram Autoblok vs Others



Dynamic grip force diagram Autoblok vs Others / II



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