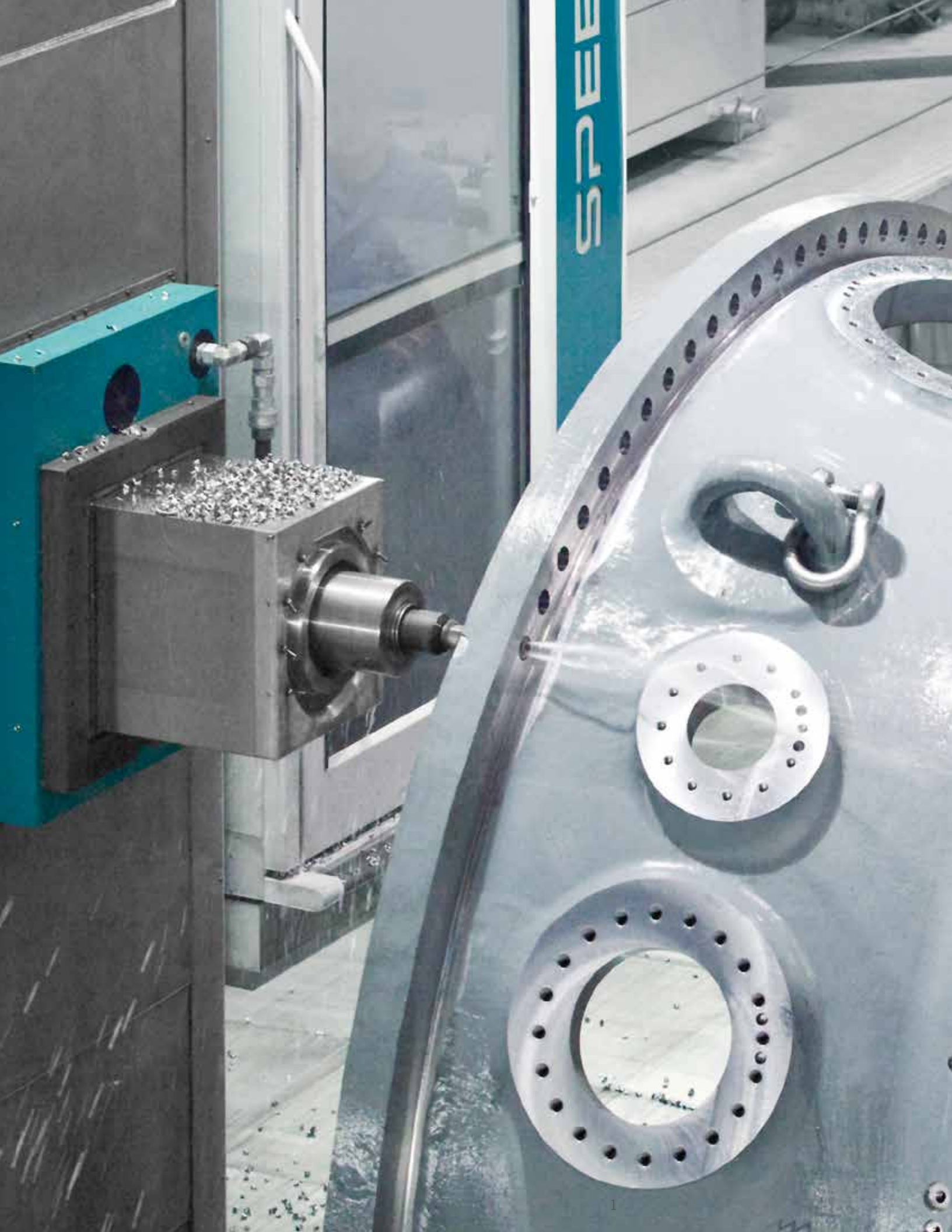


SPEEDRAM

FLOOR TYPE BORING AND MILLING MACHINES



SPEEDRAM product range consists of five models with boring spindle from 5.11" to 10.23" diameter and vertical stroke from 78.74" to 315", all developed based on the same high tech solutions and built with utmost care and attention



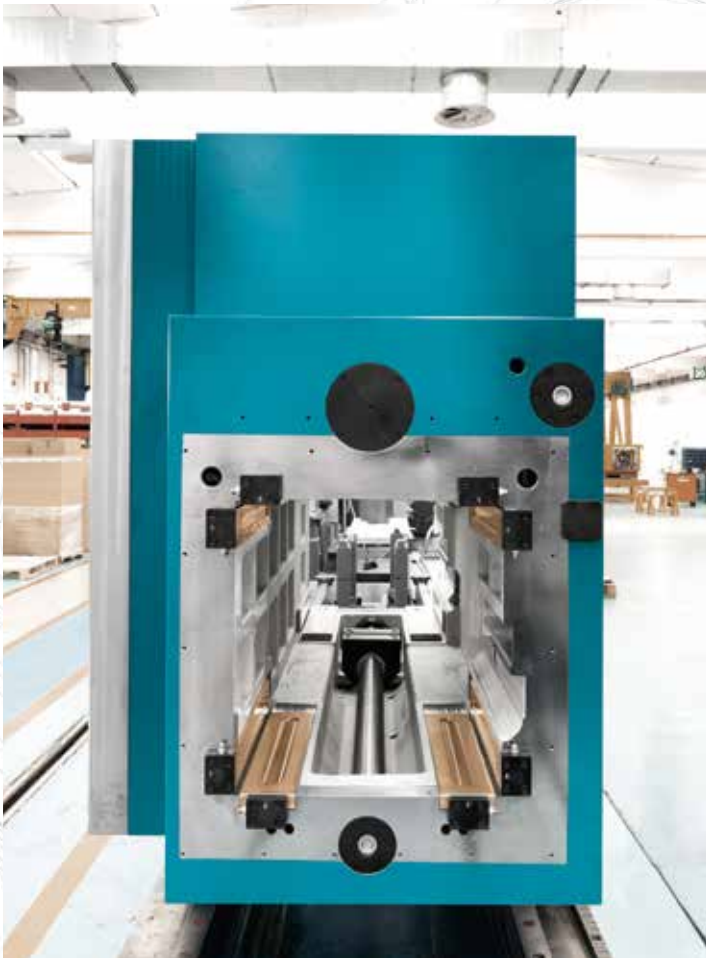


STRUCTURAL FEATURES

all SPEEDRAM boring and milling machines are designed to guarantee maximum rigidity and stock removal ability throughout their work envelope and to maintain their accuracy in time



double wall column
construction



monolithic cast iron headstock with
hydrostatic support on all sides

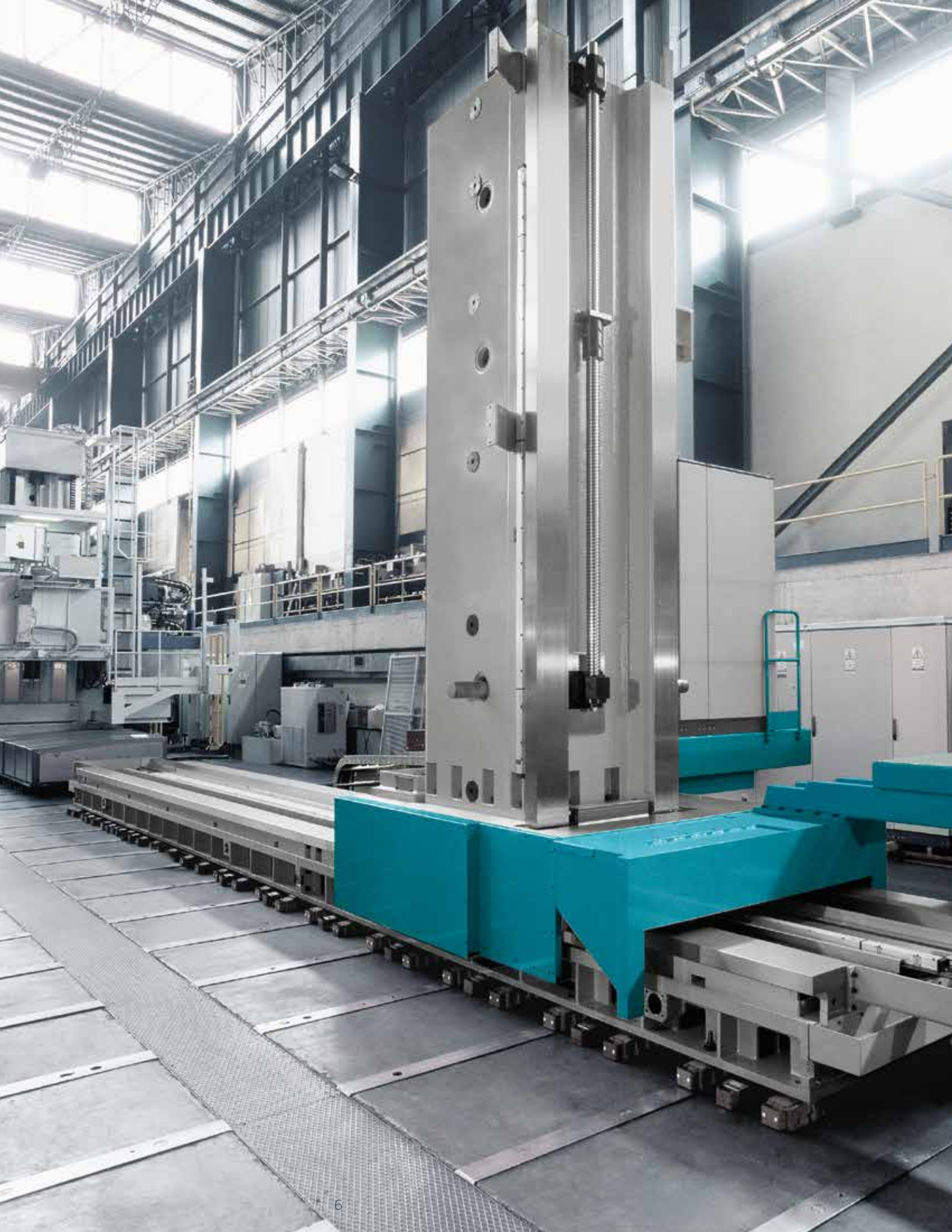
individually hand scraped hydrostatic
bronze pads guarantee maximum
accuracy of the oil film thickness and
performance



STRUCTURAL FEATURES

all linear axes with full
hydrostatic guideways



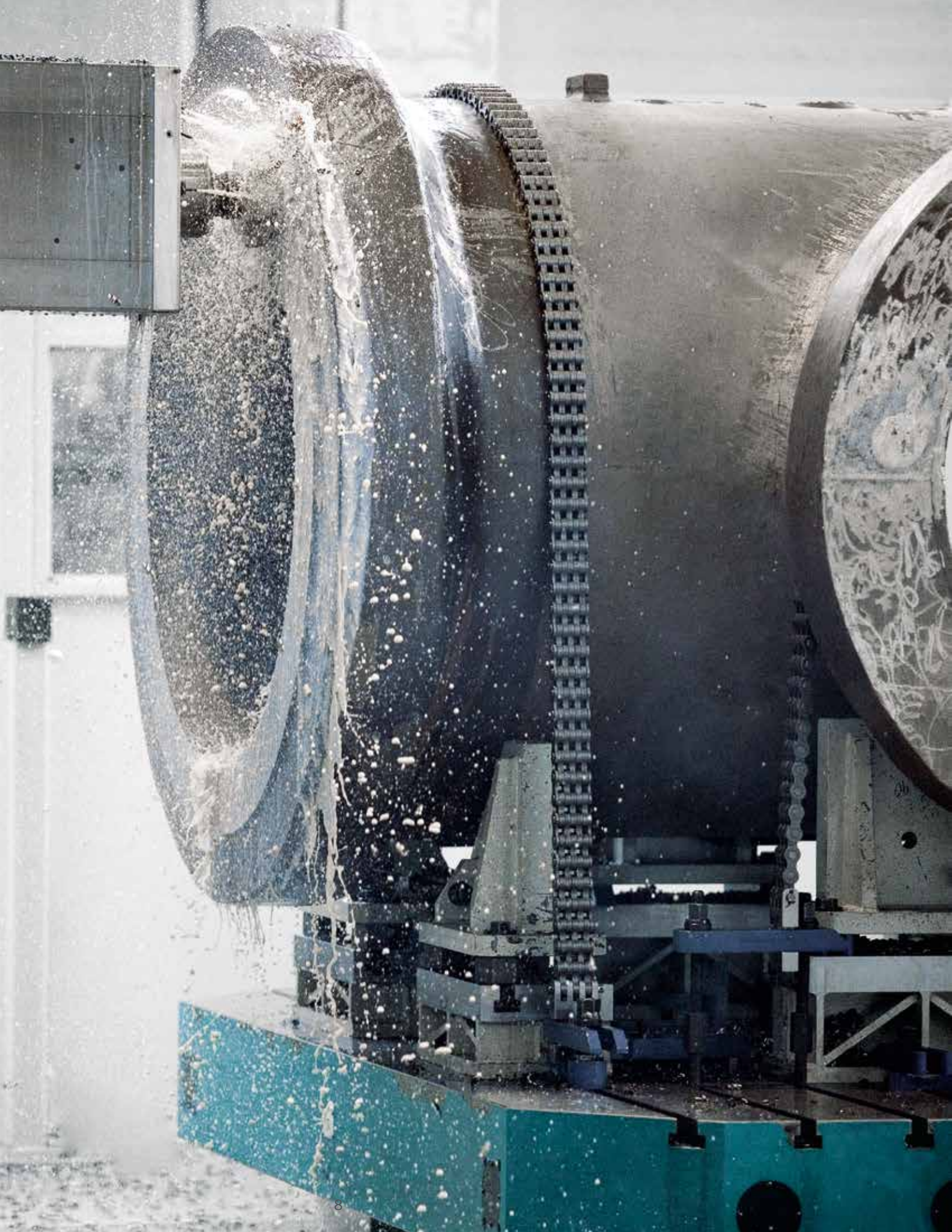




TECHNICAL SOLUTIONS

rectangular ram fully enclosed in a monolithic headstock casting with hydrostatic support on all sides





TECHNICAL SOLUTIONS

SPEEDRAM boring and milling machines are a combination of well tested and sturdy elements like frames and structure, with innovative high tech solutions, to achieve the highest accuracy and productivity

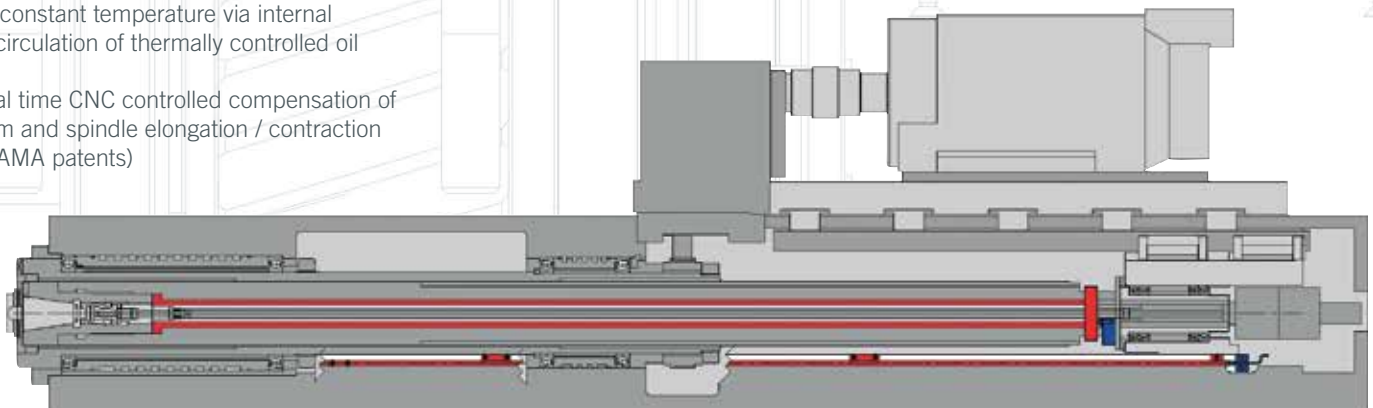
real time CNC controlled geometric compensation of ram drop and sag and headstock tilt



the spindle powertrain uses hardened and ground gears

ram and spindle gearbox are maintained at constant temperature via internal recirculation of thermally controlled oil

real time CNC controlled compensation of ram and spindle elongation / contraction (PAMA patents)









TOOL MAGAZINES

productivity of SPEEDRAM
machines is further enhanced
by a complete range of tool
magazine options





chain type tool magazines, column
side mounted, with capacity from
60 to 140 tools

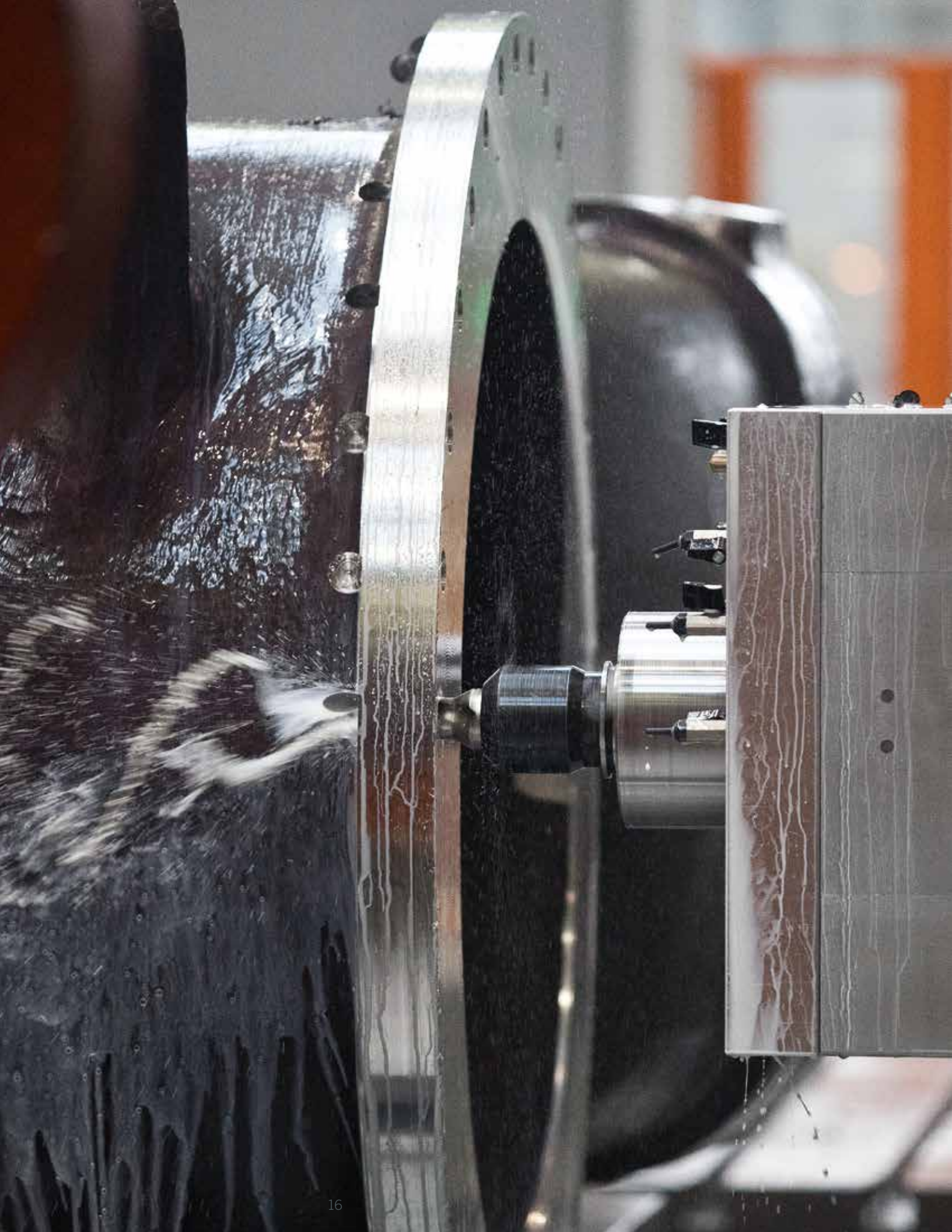
rack type tool magazines, floor
mounted and served by robot,
with capacity up to 1000 tools



TOOL MAGAZINES

rack type tool magazines, column
side mounted, with capacity up to
200 tools







APPLICATION FIELDS

all SPEEDRAM models may be customized to meet specific needs and satisfy nearly all the requirements in the fields of power generation, earthmoving, heavy mechanical engineering, shipbuilding, railway, large diesel engines, aerospace, general machining



POWER GENERATION



wind power generation nacelle
machining





pelton turbine machining



steam turbine case machining





EARTHMOVING FIELD

hydraulic excavator upper
frame machining



LARGE DIESEL ENGINES FIELD

engine block machining



POWER GENERATION

steam turbine rotor
machining

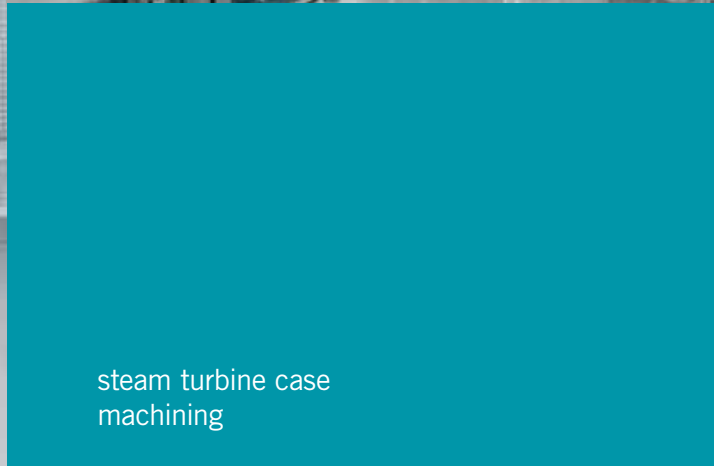
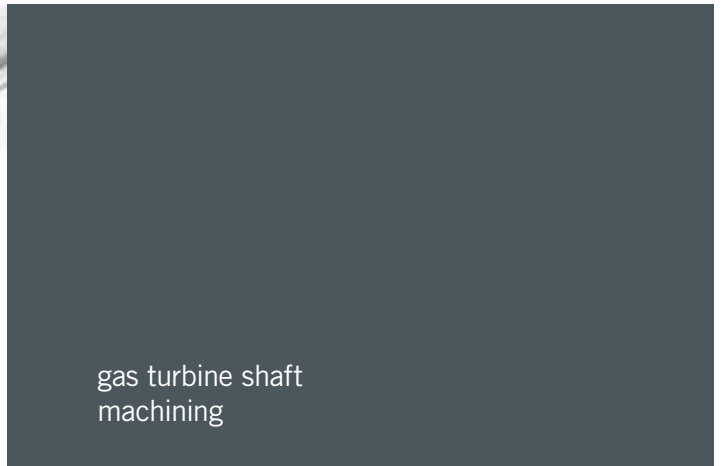


wind power generation
nacelle machining



SHIPBUILDING FIELD
variable pitch propeller
blade machining













SPEEDRAM

SPEEDRAM floor type boring and milling machines with full hydrostatic guideways



HEAD ATTACHMENTS

the versatility of the SPEEDRAM machines is further enhanced by the wide range of attachments available, all capable of being automatically loaded / unloaded for maximum efficiency

2 axes contouring head TW 2 AC



right angle head TS



universal head TU



right angle head TS





universal head with orthogonal axes TTL



facing head UT



ROTOTRAVERSING TABLES

PAMA produces a wide range of hydrostatic rototraversing tables naturally complementing the SPEEDRAM machines. Optimal integration of machines and tables is achieved thanks to the commonality of technology and solutions used

TECHNICAL FEATURES OF HYDROSTATIC ROTOTRAVERSING TABLES

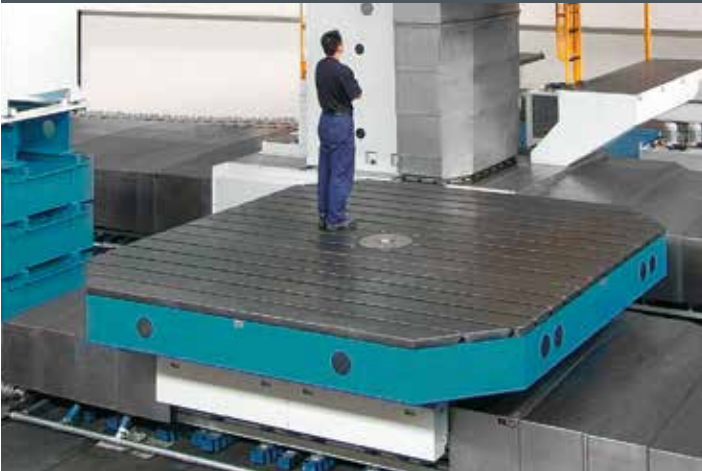
		TH 50	TH 65	TH 80	TH 100	TH 120
loading capacity	lbs	110000	143000	176000	220000	265000
table surface - min.	in	79 x 79	98 x 98	98 x 98	118 x 118	118 x 118
table surface - max.	in	118 x 118	138 x 138	157 x 157	177 x 177	197 x 197
V axis longitudinal travel	in	59 - 157	59 - 177	59 - 177	79 - 177	79 - 177

		TH 160	TH 250	TH 300	TH 600
loading capacity	lbs	353000	551000	661000	1323000
table surface - min.	in	157 x 157	177 x 177	197 x 197	236 x 236
table surface - max.	in	236 x 236	236 x 315	236 x 472	315 x 472
V axis longitudinal travel	in	118 - 197	197 - 276	197 - 315	197 - 315

tables with other dimensions and loading capacity are available upon request

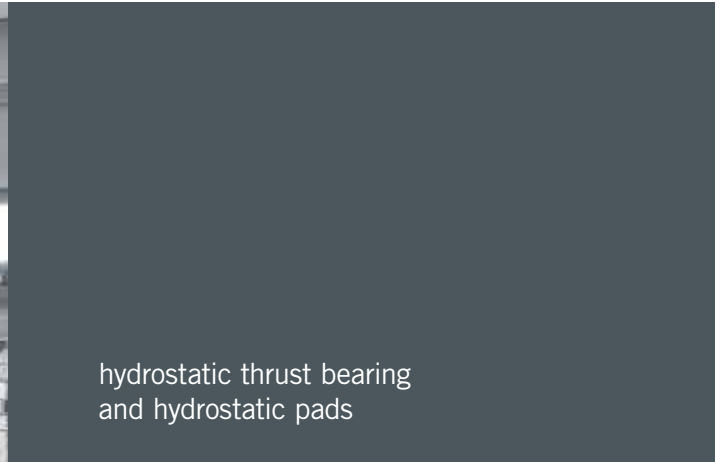


hydrostatic support for both rotary table and
linear traversing axis



B axis is driven via a double rack and
pinion system (preloaded for backlash
free operations)

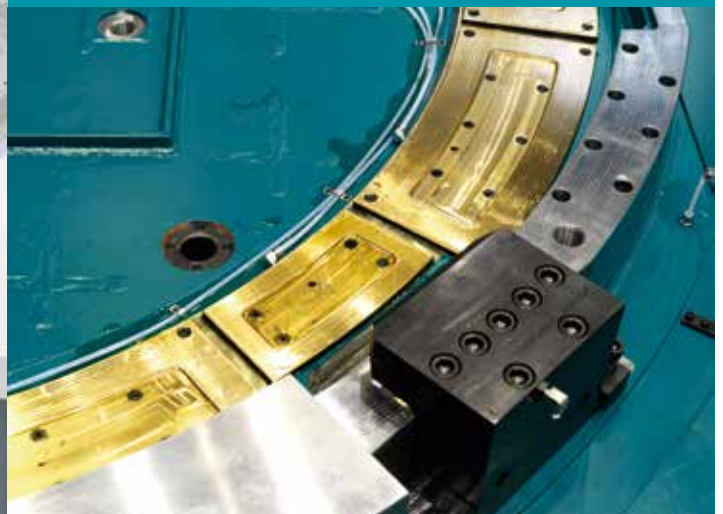




hydrostatic thrust bearing
and hydrostatic pads



self adjusting hydraulic
brakes on rotary table (B axis)





sliding enclosure movable between
working areas for SPEEDRAM 2000



SAFETY AND ERGONOMICS

fully enclosed guardings are
available for SPEEDRAM machines
in order to guarantee a safe and
clean working environment





ERGONOMICS AND SAFETY

guarding systems for
SPEEDRAM 3000 with
palletized rototraversing table



TECHNICAL SPECIFICATIONS

the SPEEDRAM product range allows to perfectly match any of our customer application requirements in terms of size, power, productivity and accuracy

SPEEDRAM

1000

2000

3000

4000

5000

WORKING AREA

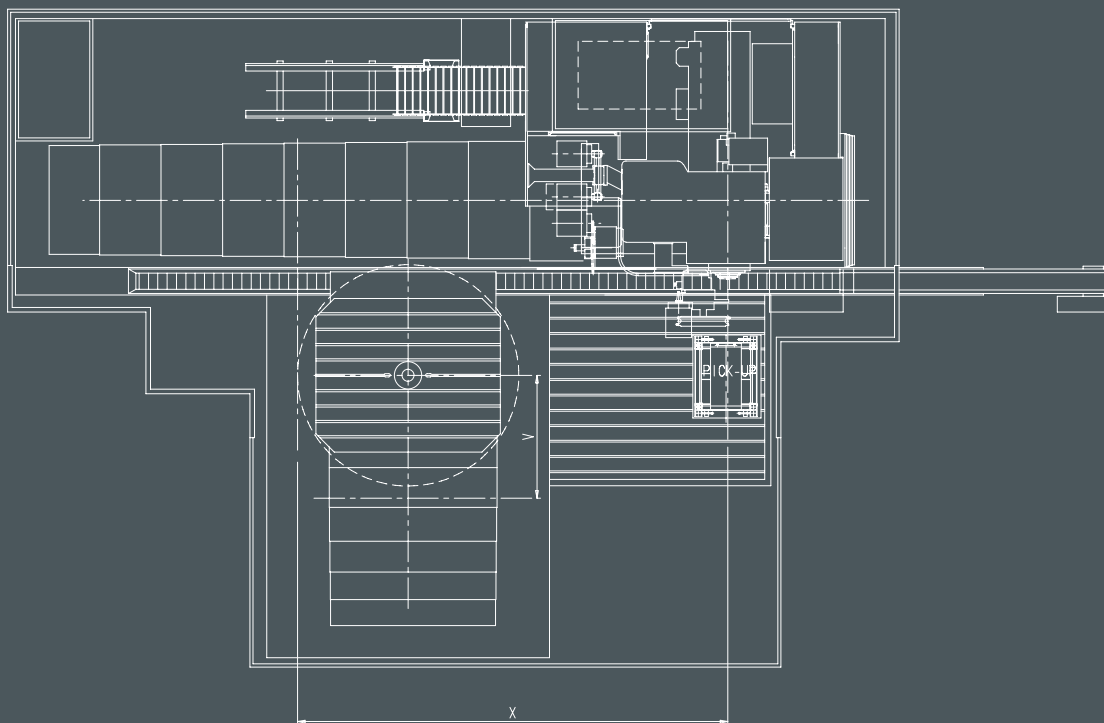
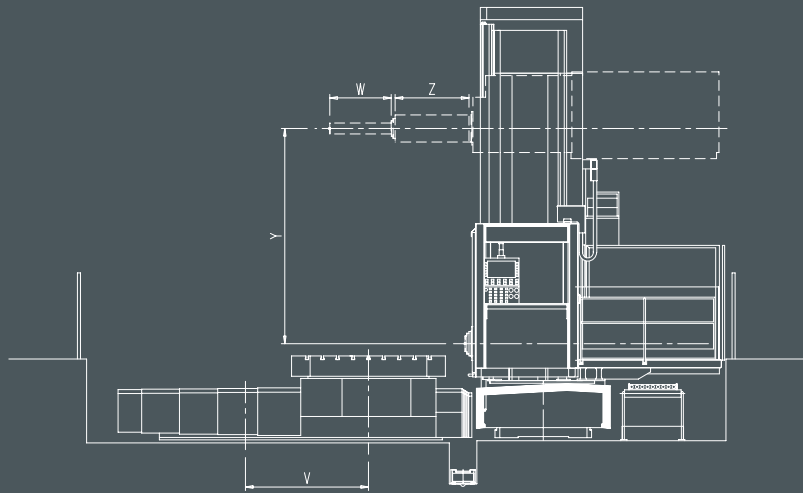
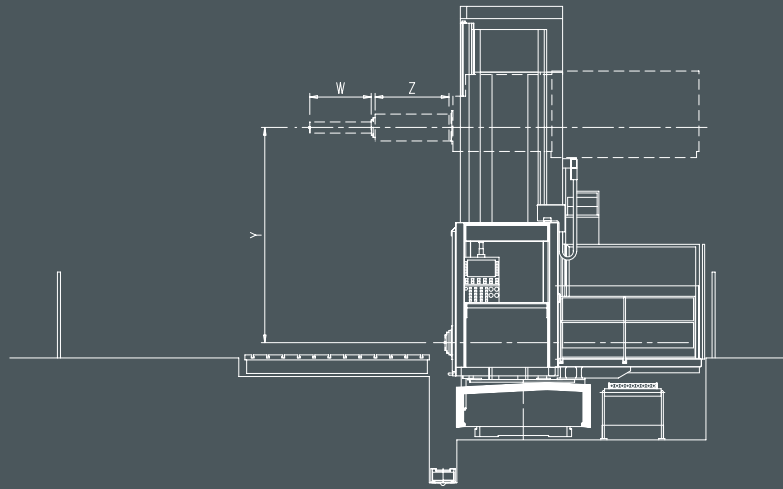
X axis (column)	in	157	157	236	236	236
	in	+N° x 39	+N° x 39	+N° x 39	+N° x 39	+N° x 39
Y axis (headstock)	in	79 - 157	118 - 197	157 - 236	197 - 276	197 - 315
Z axis (ram)	in	39	47	59	67	75
W axis (boring spindle)	in	28	39	47	55	63
Z+W axes	in	67	87	106	122	138

HEADSTOCK

Ram section	in	14.2 x 15.7	15.7 x 17.3	17.3 x 18.9	20.5 x 22.0	22.0 x 23.6
Boring spindle diameter	in	5.1 - 5.9 - 6.3	5.9 - 6.3 - 7.1	6.3 - 7.1 - 7.9	7.9 - 8.9 - 10.2	8.9 - 10.2
Max. spindle speed	rpm	4000 - 3500 - 3500	3500 - 3500 - 2500	3500 - 2500 - 2200	2200 - 2000 - 1600	2000 - 1600
Spindle gear ranges		2	2 - 3	3	3	3
Max. spindle power (S1-100%)	HP	50 - 70	80 - 125	94 - 125	160	195
Max. spindle torque (S1-100%)	ft-lb	1125 - 1767	2081 - 6824	4246 - 7660	9501 - 12603	15010 - 18944
Tool taper		CAT 50 BIG-PLUS	CAT 50 BIG-PLUS	CAT 50 BIG-PLUS / CAT 60	CAT 60	CAT 60

AXES RATES

X-Y-Z-W axes feed / rapid	in	1181	984	984	708	472
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PAMA has a policy of continuous improvement of its products and reserves the right to change materials and specifications without notice.

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**COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =**

