



precise[®]



**GRINDING SPINDLES
PERIPHERAL EQUIPMENT
ACCESSORIES**

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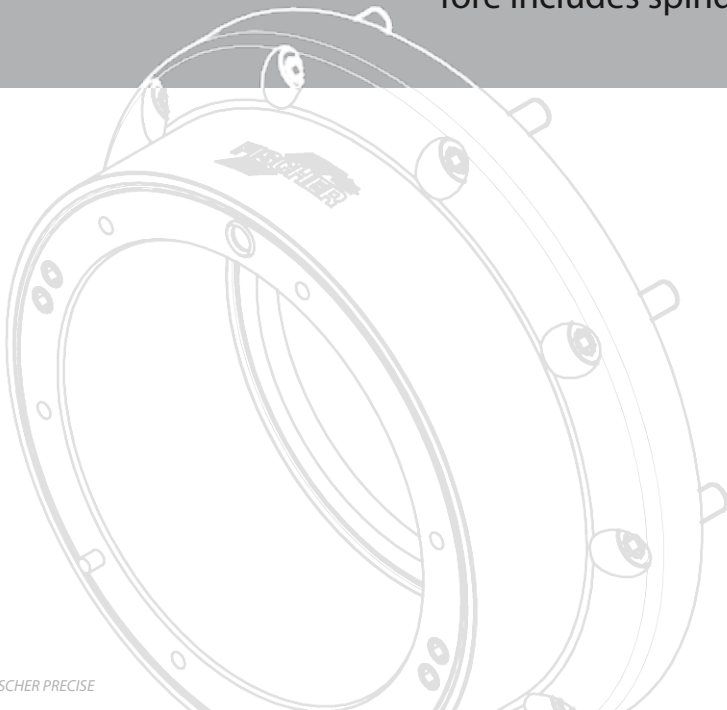
Contents

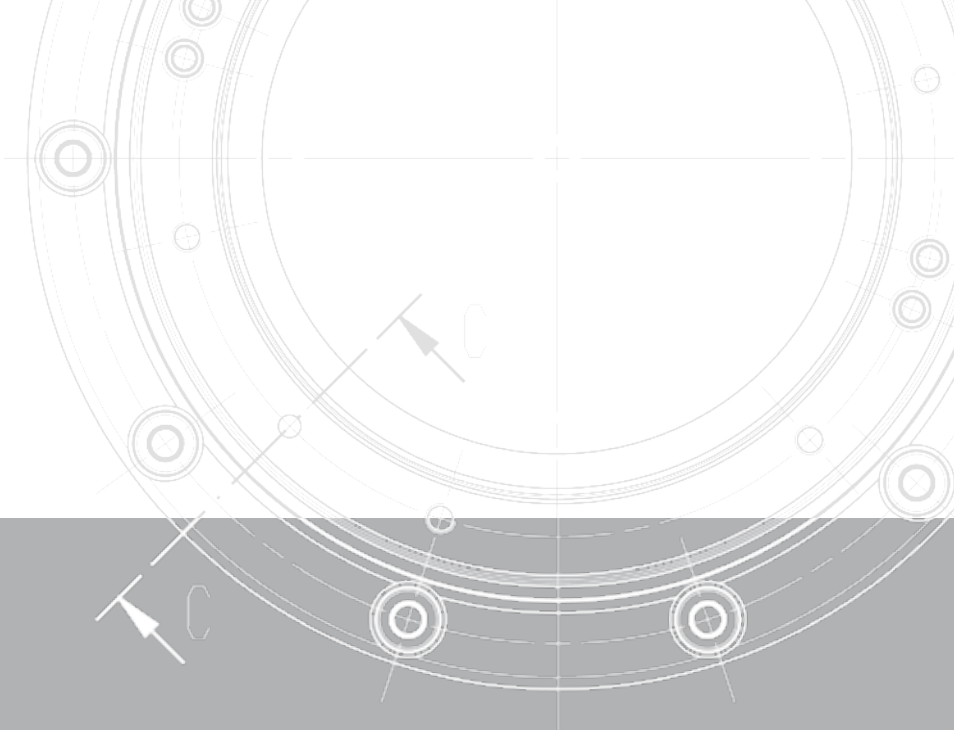
The FISCHER PRECISE GROUP	2
A precision spindle is created	4
For optimal results whatever the grinding application	6
MFM series	8
MFM rotational speed performance diagrams	9
MFV series	10
MFV rotational speed performance diagrams	10
MFN series	11
Motor dressing spindles	12
MF spindles – table of Dimensions	12
UJ series	14
HJN series	15
Fortuna FAV series	16
Fortuna FIV series	20
Fortuna M32/34 series	21
Fortuna M34 series	22
Accessories	23
for FISCHER spindles	23–36
for FORTUNA spindles	37–47
Peripheral equipment	48



The FISCHER PRECISE GROUP – leader in precision spindle manufacturing

The FISCHER PRECISE GROUP came into being in January 2006 with the merger of FISCHER and PRECISE. As a result of this step, comprehensive know-how and a high level of competence are available to the Group, the likes of which it would be impossible to find with any other manufacturer on the market. FISCHER, to which the spindle division of the former FORTUNAWERKE Maschinenfabrik GmbH has belonged since 2003, and PRECISE are business partners that are more than capable of responding to the demands of globalisation that is currently prevalent. In the design engineering and development sector, the FISCHER PRECISE GROUP offers the best possible prerequisites for satisfying the demanding requirements of our customers in the following branches of industry: aviation, tool-making and mould-making, precision and micro chip removal, grinding technology, the automotive industry, medical and dental technology, as well as printed circuit board production. The product portfolio of the FISCHER PRECISE GROUP therefore includes spindles and complete systems for all branches of





industry and the processing of various materials.

Apart from the very high quality of our products, providing our customers with excellent service and support also has a very important role to play. FISCHER PRECISE is able to fulfil the important requirements for proximity to its customers and their satisfaction thanks to a close-knit network of subsidiary companies.

Highly skilled and committed technical sales staff are available at all locations to deal with any enquiries. Over and above this, thanks to our subsidiary companies we are also able to offer a local repair service. The global network of our own subsidiaries, as well as sales partners and service centres, makes FISCHER PRECISE an efficient and reliable business partner. As well as the points already mentioned, the innovation of products and processes is also of great importance to us, as it is only with ongoing innovation that long-term success in the marketplace can be guaranteed.

The FISCHER PRECISE GROUP always puts market requirements and customer service in the forefront. So today the name of FISCHER PRECISE stands worldwide for innovative precision spindles featuring the highest possible quality and groundbreaking technology.

Well-qualified staff and plenty of know-how are the prerequisites for top class products and maximum customer satisfaction.



Before a FISCHER PRECISE grinding spindle works for you for the first time, it has already successfully undergone countless practical tests. You establish the precise specifications for the precision spindle required in conjunction with one of our technical sales consultants – a process that determines the characteristics of the spindle.

Interface with sales: project planning

FISCHER PRECISE specialists in project planning set the sights in such a way that every order for spindles hits the bulls eye. Right from the start, the experts think „outside the box“, but the way the spindle is to be used is always the main focus of the project planning phase. Bound in with this are further complex influencing variables, such as the peripheral equipment required, the grinding machine and the design of the spindle itself. For precision evaluation of the spindle, project planning can utilise the always up-to-date spindle database and the particularly helpful „spindle configurator“ – both by the way developed in-house by the FISCHER PRECISE Group!



By looking at the overall picture, project planning can guarantee an optimal solution to every project specification, both in and around the spindle. And this goes from the initial discussion right up to the commissioning of the spindle model that is matched precisely to your particular requirements.

Design and development – factors for success

If a spindle is to be modified or developed from scratch to suit a customer's needs, application-orientated specialist teams are deployed. The way this team is organised guarantees an ongoing accumulation of know-how in the most varied of application fields.

Experienced technical experts, from the designer to the engineer, all contribute to the success of the development task thanks to their know-how and capabilities. Precision spindles have an extremely high level of „packing density“ – in other words, different technologies and electronic components are built into the smallest spaces. By using the latest resources, such as 3D CAD systems, a number of people from the team can work simultaneously on the same project, which is always being updated. Using the „Finite element method“, the forces or heat influences per element can be simulated on the 3D model. In this way, fully functional virtual spindles are created. The specialist teams are networked with one another through a matrix organisation and also pass on their know-how to a number of trainees on a regular basis.



Efficient production at the customer's service

Committed staff and very reliable deliveries are values that have characterised the whole FISCHER PRECISE Group for over five decades and especially its high performing Production Department. Lean management structures ensure encouragement of taking personal responsibility. For example, our production technicians perform all quality control measurements directly in the manufactur-

ing process.

The FISCHER PRECISE Group currently produces at two locations using the latest production machinery. In Switzerland, manufacturing is concentrated on machining before and after heat-treatment in the user sector of all spindle components. In this respect, the distance between centres of the spindle shafts varies from 80 mm to no less than 2 metres! Over 2,000 parallel running production orders are necessary to ensure the manufacture of all spindle components on time. „On time“ at FISCHER PRECISE means just that – accurate to the day! This is only possible thanks to an experienced workforce and manufacturing methods developed in-house. The factory in Germany concentrates on the manufacture of small parts, as well as the series production of individual spindle models.



Assembly: a masterpiece is completed

Parts are degreased using an environmentally-friendly, water-based cleaning agent before being completed using the precision handiwork skills of our assembly technicians. During this process, a sort of „birth certificate“ is issued on a web-based database for each spindle. In this way, all future information on the spindle that has been registered can be recorded at any time all over the world by each subsidiary company and relevant data called up online. Then, even years later, it is possible to trace from which production batch a shaft, for example, came. Also recorded here is information on the lubrication and clamping systems, as well as all set-up values and the values measured on final inspection.

Once assembly is complete and it has been released for testing, every precision spindle then spends at least 9 hours on a special test bench. In this process, the prerequisites of the peripheral equipment, such as transformer, lubrication system, etc., are also determined. On final acceptance, every FISCHER PRECISE spindle is issued with a test report bearing the signature of the technician responsible.



Customer service – a valuable product benefit

The basic requirements for a high level of customer satisfaction are already created in the run-up to a spindle delivery. This also includes effective customer service on three continents: in Europe, Asia and America you are guaranteed to be able to contact a technician 24 hours a day, who will be pleased to help you thanks to our well thought out maintenance and repair scheme. In the most important markets, all work is carried out locally in our branches. The quickest possible service is offered as a result of short transport routes and specialist skills in your locality. Even years after you have purchased a FISCHER PRECISE spindle, perfect solutions are still ensured!

This broad spectrum of skills has made FISCHER PRECISE what it is today: market and technology leader in the field of precision spindles.





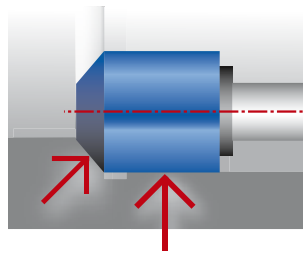
Universally resilient bearing: Tandem-O-Tandem
 This hybrid bearing has been specially designed for very variable grinding forces. The Dimensions and optimal position of the bearing dictate the critical rotational speed, so that even extra-long tools can be used at the highest rotational speeds.

Hybrid ball bearing
 Ceramic balls result in a longer service life at higher rotational speeds and very quiet operation with reduced axial displacement.

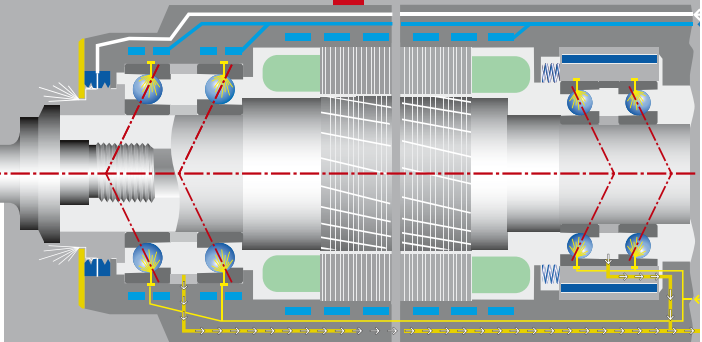
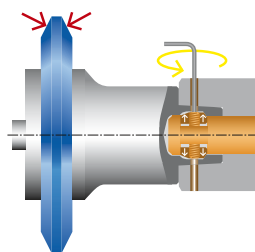
Direct injection lubrication
 In the case of DLS (Direct Lubrication System), a special oil-air mixture is injected radially directly into the bearing area under the greatest load.

Grease lubrication for reduced rotational speed range. Large tool diameters and the most demanding requirements of surface accuracy can be fulfilled using bearings lubricated with a long-lasting grease. This means there are no longer costs for oil-air lubrication.

HSK or FISCHER threaded grinding mandrel
 The FISCHER PRECISE threaded grinding mandrel represents a cost-effective, universal alternative for a large number of different grinding wheels with the same direction of rotation.



The manual HSK-C for cylindrical grinding
 The standardised HSK-C interface for manual tool changing ensures maximum accuracy and stability, thanks to its tapered hollow shaft and planar support. When fitting CBN and diamond grinding wheels, it guarantees a very high level of repeat accuracy on tool changing, so that after changing grinding wheels only a minimum amount of dressing material removal is necessary.



A bearing cooling system ensures constant bearing temperatures, which in turn increase grinding precision and bearing service life.

Rear pair of bearings designed as floating bearings, incorporated into a spring pre-tensioned slide bush with bearing cooling. This guarantees constant pre-tensioning of the bearing with less wear and tear, and prevents thermal shaft displacement towards the front.

Multiple sealing of the spindle nose guarantees a high level of operating safety and long spindle service life under the harshest working conditions.

Extraction of residual oil
 The oil-air mixture is completely extracted from the lubrication system. The grinding emulsion stays clean, which saves on disposal costs and protects the environment.

MFM series

Universally compatible, multi-sector grinding spindle with maximum performance.

- Compact, robust design
- High performance and torque over a wide rotational speed range
- Excellent stability and concentricity for the best Dimensional and form tolerances
- Designed for high radial and axial loads
- Air seal supported sealing system
- Various interfaces available



MFM models

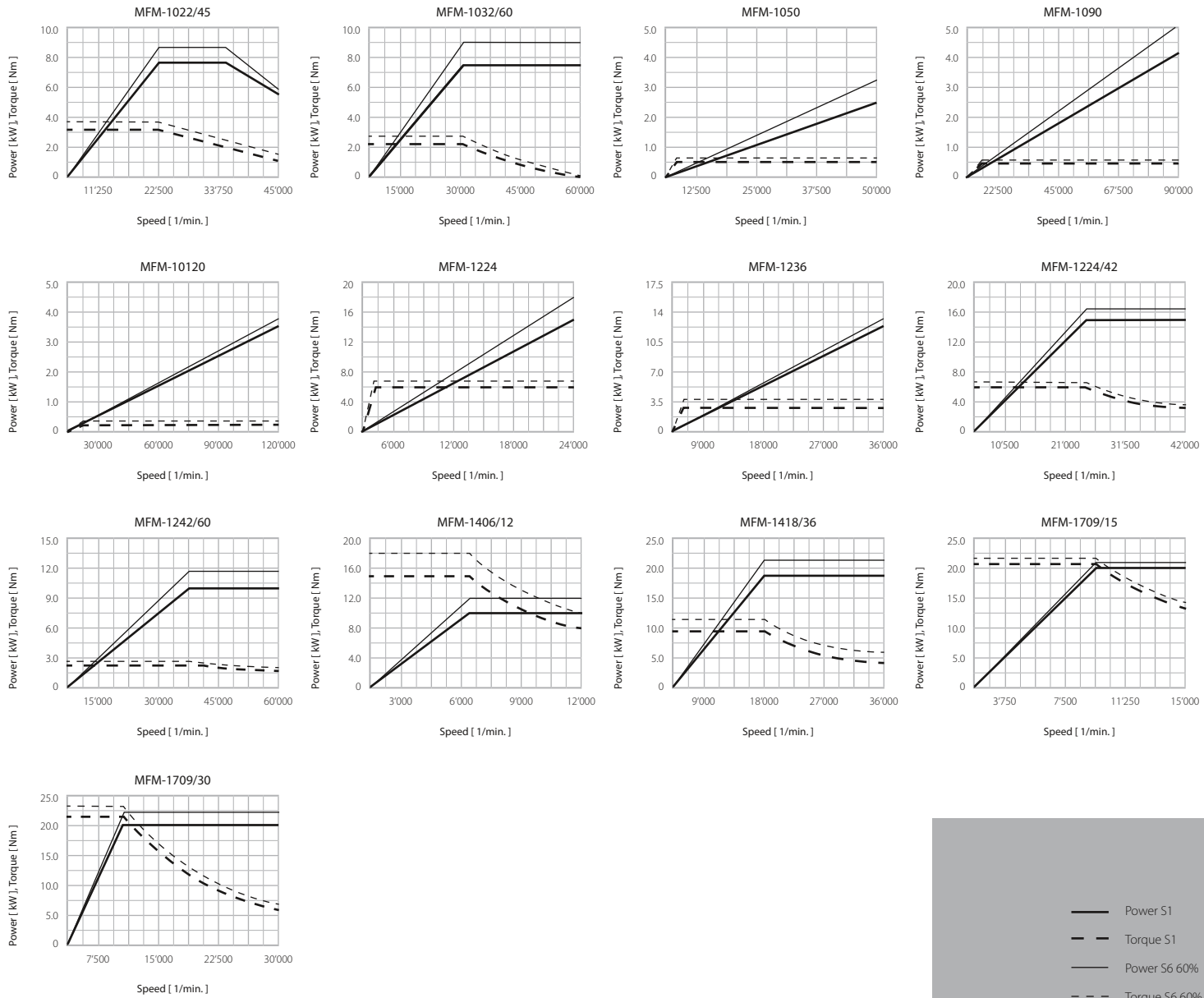
Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Voltage [V]	Current [A]	Max. Power [kW] S6 60%		Max. Torque [Nm]		Static rigidity		Option	
								S1	S6	S1	S6	axial [N/μm]	radial [N/μm]	DDF	S1
MFM-1022/45	HJND-21	Oil-air	100	288	45'000	380	18	7.5	8.6	3.36	3.85	100	127		X
MFM-1032/60	HJND-28	Oil-air	100	250	60'000	380	17	7.5	8.6	2.24	2.76	77	90		X
MFM-1050	HJND-50	Grease	100	222	50'000	380	5.3	2.5	3.1	0.5	0.6	31	26		X
MFM-1090	HJND-50	Oil-air	100	222	90'000	380	9	4.2	5.4	0.4	0.6	50	35		X
MFM-10120	HJND-60	Oil-air	100	207	120'000	380	8.9	3.5	4.5	0.28	0.36	42	32	O	X
MFM-1224	HJND-21	Grease	120	337	24'000	350	38	15	17	6.0	6.8	59	80	X	X
	HSK-C40	Grease	120	337	24'000	350	38	15	17	6.0	6.8	59	80	X	X
MFM-1236	HJND-28	Grease	120	289	36'000	364	31	12	13.5	3.2	3.6	47	47		X
	HSK-C25	Grease	120	289	36'000	364	31	12	13.5	3.2	3.6	47	47		X
MFM-1224/42	HJND-21	Oil-air	120	336	42'000	380	38	15	17	6.0	6.8	100	140	X	X
	HSK-C40	Oil-air	120	336	42'000	380	38	15	17	6.0	6.8	100	140	X	X
MFM-1242/60	HJND-28	Oil-air	120	288.5	60'000	380	28	10	11.5	2.3	2.6	70	88		X
	HSK-C25	Oil-air	120	288.5	60'000	380	28	10	11.5	2.3	2.6	70	88		X
MFM-1406/12	HJND-16	Grease	140	388	12'000	350	32	10	12	15	18			O	X
	External taper	Grease	140	388	12'000	350	32	10	12	15	18			O	X
	HSK-C50	Grease	140	388	12'000	350	32	10	12	15	18			O	X
MFM-1418/36	HJND-16	Oil-air	140	388	36'000	350	38	18	22	9.5	11.9			O	X
	HSK-C50	Oil-air	140	388	36'000	350	38	18	22	9.5	11.9			O	X
MFM-1709/15	HSK-C63	Grease	170	401	15'000	350	56	20	22	18.7	23.3	184	214	X	X
MFM-1709/30	HSK-C63	Oil-air	170	401	30'000	350	56	20	22	18.7	23.3	249	287	X	X

Options:
DDF = rotary feedthrough
PNP = standstill sensor S1
X = available
O = on request

Rotational speed performance diagrams

The motor concept for trendsetting grinding technologies: UniDrive spindles offer high performance over the entire rotational speed range and are particularly suitable for universal use with high-performance cutting materials, such as CBN and PKD. In this way, the rotational speed range up to 120,000 rpm can be used with only a few spindles. With the VC open, closed loop control system, the torque in the lower rotational speed range can also be further increased.

MFM rotational speed performance diagrams



— Power S1
 - - Torque S1
 — Power S6 60%
 - - Torque S6 60%

MFV series

Internal grinding spindle in medium performance range

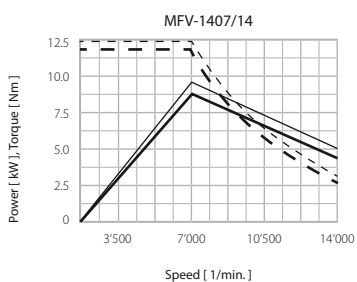
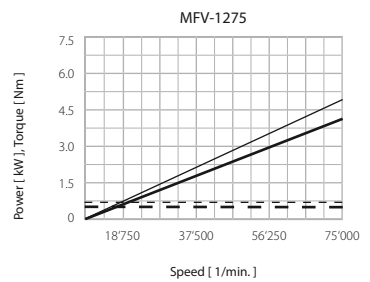
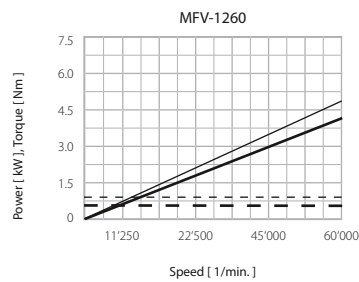
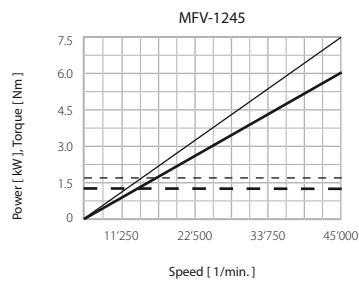
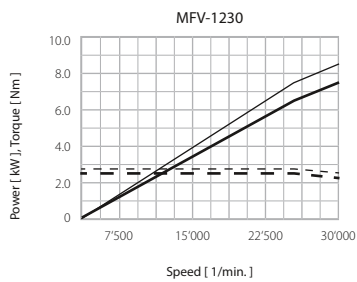
- Robust design
- High performance
- High radial stability
- Labyrinth seal



MFV models

Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Voltage [V]	Current [A]	Max. Power [kW]		Max. Torque [Nm]	
								S1	S6	S1	S6
MFV-1230	HJND-28	Oil-air	120	265	30'000	350	21	7.5	8.5	3.0	3.4
MFV-1245	HJND-35	Oil-air	120	250	45'000	350	16	6.0	7.5	2.0	2.4
MFV-1260	HJND-42	Oil-air	120	235	60'000	350	11	4.0	5.2	0.85	1.1
MFV-1275	HJND-50	Oil-air	120	230	75'000	350	11	4.0	5.0	0.64	0.8

MFV rotational speed performance diagrams



- Power S1
- - - Torque S1
- Power S6 60%
- - - Torque S6 60%

MFN series

Internal grinding spindle for highest rotational speeds

- Compact design
- Medium performance range
- Good damping for best surface quality
- Labyrinth seal



MFN models

Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Voltage [V]	Current [A]	Max. Power [kW] S6 60%		Max. Torque [Nm]		Static rigidity	
								S1	S6	S1	S6	axial [N/μm]	radial [N/μm]
MFN-860	HJND-42	Oil-air	80	230	60'000	350	7	2.5	3.2	0.5	0.7	38	31
MFN-875	HJND-50	Oil-air	80	210	75'000	350	5.5	2.0	2.5	0.32	0.4	34	24
MFN-890	HJND-60	Oil-air	80	190	90'000	350	4.6	1.5	2.0	0.13	0.3	15	19
MFN-8120	HJND-80	Oil-air	80	180	120'000	350	3	1.2	1.5	0.1	0.2	11	11
MFN-8150	MFND-150	Oil-air	80	170	150'000	350	2	0.5	0.75	0.06	0.1	9	5
MFN-1090	HJND-60	Oil-air	100	200	90'000	350	6	2.0	2.5	0.3	0.3	15	19

Motor dressing spindles

- Extremely robust and compact design
- Optimal thermal and mechanical stability for maximum precision
- Large bearing and biggest possible interface for outstanding stability of the whole system
- Maintenance-free, thanks to grease lubricated hybrid ball bearing, optional tool noise sensor „GAP control“ for reliable spark detection

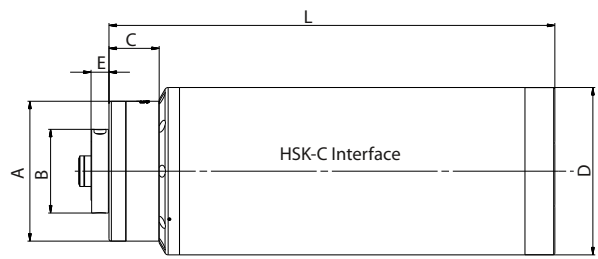
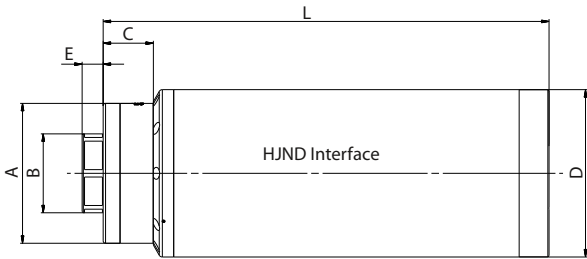
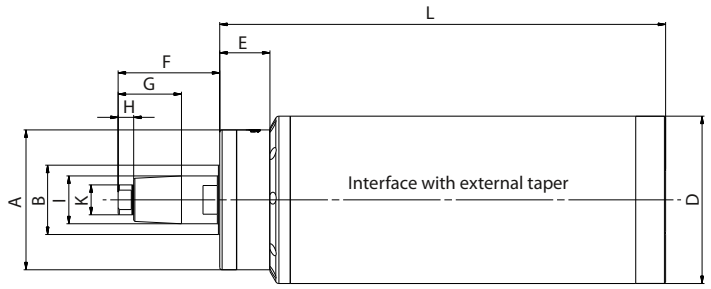


Motor dressing spindles

Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Voltage [V]	Static rigidity		GAP	Radial connections Art. No.	Axial connections Art. No.
							axial [N/μm]	radial [N/μm]			
AES-72 x 230	For dressing wheels with Ø 40mm bores	Grease	72	230	16'000	220	80	36		33798-002	33798-003
AES-72 x 260	For dressing wheels with Ø 40mm bores	Grease	72	260	16'000	220	80	36	X	102514	
MZ-50	Collet chuck for Ø 0.5 to Ø 9mm, type D14	Grease	50	150	30'000	230					51530-002

MF spindles – table of Dimensions

Type	Taper	D	L	A	B	C	E	F	G	H	I	K
MFM-1022/45	HJND-21	100	298	100	52	-	10					
MFM-1032/60	HJND-28	100	260	81	40	38	10					
MFM-1050	HJND-50	100	222	68	25	40	7					
MFM-1090	HJND-50	100	222	68	25	40	7					
MFM-10120	HJND-60	100	210	60	20	30	7					
MFM-1224	HJND-21	120	336	100	52	39	10					
MFM-1224	HSK-C40	120	369	100	55	42	12					
MFM-1236	HJND-28	120	289	81	40	44	10					
MFM-1236	HSK-C25	120	289	81	45	44	10					
MFM-1224/42	HJND-21	120	336	100	52	39	10					
MFM-1224/42	HSK-C40	120	338	100	55	42	12					
MFM-1242/60	HJND-28	120	289	81	40	44	10					
MFM-1242/60	HSK-C25	120	289	81	45	44	10					
MFM-1406/12	HJND-16	140	391	117	66	60	18					
MFM-1406/12	External Taper K1:10 D40	140	458	117	58	127	85	84	53	13	40	25



Type	Taper	D	L	A	B	C	E	F	G	H	I	K
MFM-1406/	12 HSK-C50	140	388	117	70	57	15					
MFM-1418/36	HJND-16	140	391	117	66	60	18					
MFM-1418/36	HSK-C50	140	388	117	70	57	15					
MFM-1709/15	HSK-C63	170	424	132	87	62	17					
MFM-1709/30	HSK-C63	170	424	132	87	62	17					
MFV-1230	HJND-28	120	300	90	42	35	15					
MFV-1245	HJND-35	120	280	80	32	31	12					
MFV-1260	HJND-42	120	271	75	27	36	11					
MFV-1275	HJND-50	120	250	70	24	20	11					
MFN-860	HJND-42	80	234	65	28	6	11					
MFN-875	HJND-50	80	214	60	25	6	11					
MFN-890	HJND-60	80	195	55	21	6	9					
MFN-8120	HJND-80	80	184	50	15	6	7					
MFN-8150	MFND-150	80	175	50	12	6	6					
MFN-1090	HJND-60	100	205	55	21	6	9					

All Dimensions are in mm



UJ series

The belt-driven spindles in the UJ series are extremely compact and have been developed for grinding applications in the rotational speed range from 12'000 to 28'000 rpm. The high-precision bearings of these spindles are lubricated with long-lasting grease and therefore maintenance-free. The through hardened spindle shaft and elastic pre-tensioning of the bearing give this spindle a high level of stability, quiet operation and reliability. The spindles in the UJ series are designed predominantly for radial load, but can also be subjected to axial load.

UJ models

Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Art. No.	Pulley	Art. No.
UJ-40X250	UJD-40 Arbor	Grease	40	250	28'000	31417 - 008	Ø 25 Ø 30 Ø 40 Ø 50 Ø 60	31417- 432 31417- 433 31417- 434 31417- 435 31417- 436
	UJP-40 Flange							
	UJZ-40 Collet mandrel EX 16							
UJ-50X250	UJD-50 Arbor	Grease	50	250	23'000	31517 - 008	Ø 32 Ø 38 Ø 48 Ø 60 Ø 75	31517- 431 31517- 432 31517- 433 31517- 434 31517- 435
	UJP-50 Flange							
	UJZ-50 Collet mandrel EX 20							
UJ-60X300	UJD-60 Arbor	Grease	60	300	18'000	31617 - 012	Ø 40 Ø 46 Ø 60 Ø 75 Ø 90	31617- 453 31617- 454 31617- 455 31617- 456 31617- 457
	UJP-60 Flange							
	UJZ-60 Collet mandrel EX 25							
UJ-70X300	UJD-70 Arbor	Grease	70	300	14'000	31717 - 008	Ø 50 Ø 58 Ø 75 Ø 90 Ø 105	31717- 434 31717- 435 31717- 436 31717- 437 31717- 438
	UJP-70 Flange							
	UJZ-70 Collet mandrel EX 32							
UJ-80X350	UJD-80 Arbor	Grease	80	350	12'000	31817 - 008	Ø 60 Ø 70 Ø 85 Ø 105 Ø 125	31817- 449 31817- 450 31817- 451 31817- 452 31817- 453
	UJP-80 Flange							
	UJZ-80 Collet mandrel EX 40							

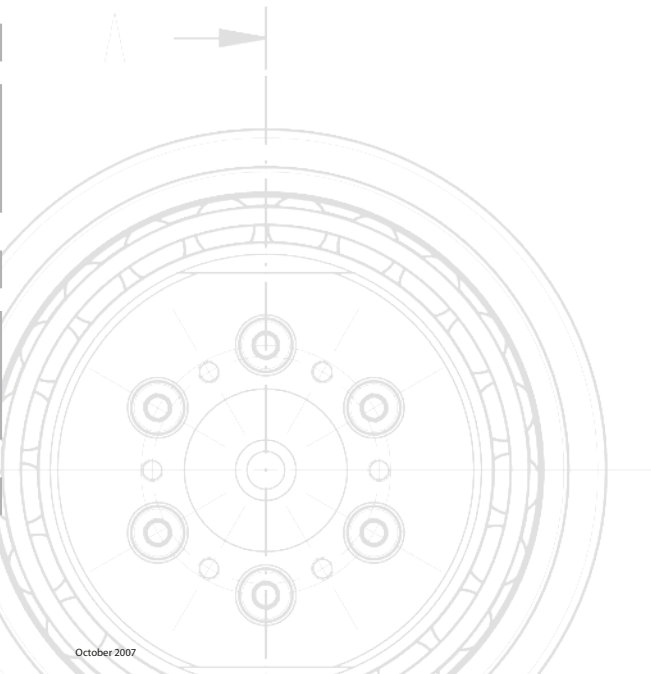


HJN series

The belt-driven spindles in the HJN series have been developed for grinding applications in the rotational speed range from 28'000 to 60'000 rpm. The spindles have been designed for both radial and axial load. HJN spindles can be used in any position and are designed for clockwise rotation.

HJN models

Type	Taper	Lubrication	D [mm]	L [mm]	Max. Speed [rpm]	Art. No.	Pulley	Art. No.
HJN-828	HJND-28	Grease	80	240	28'000	107517	Ø 27 Ø 32 Ø 40 Ø 52 Ø 68	51804 - 411 51804 - 412 51804 - 413 51804 - 414 51804 - 415
HJN-842	HJND-42	Grease	80	230	42'000	107531	Ø 18 Ø 22 Ø 27 Ø 34 Ø 43	51703 - 411 51703 - 412 51703 - 413 51703 - 414 51703 - 415
HJN-860	HJND-60	Grease	80	220	60'000	107635	Ø 13 Ø 15 Ø 18 Ø 22 Ø 26	51701 - 411 51701 - 412 51701 - 413 51701 - 414 51701 - 415



Fortuna FAV series

Standard spindles for belt drive with external taper on the working side

The spindles in the FAV range are tool holders designed for the most varied areas of application. Many tried and tested design features have been implemented into this series.

- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system
- Spindles are completely balanced dynamically
- Taper true running ≤ 0.002 mm

Options/special solutions:

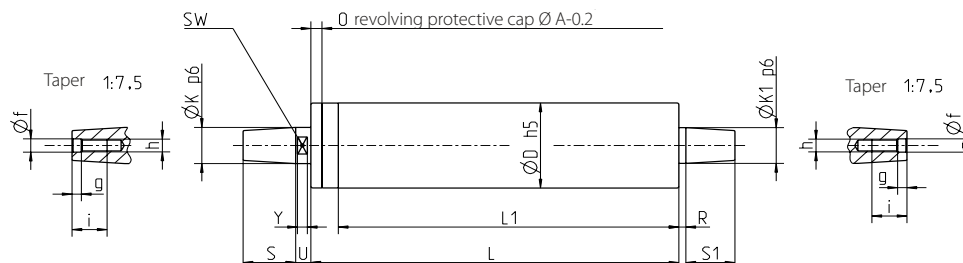
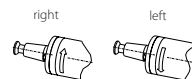
- Right/left protection
- Air seal
- Other Dimensions and versions on request



Description		Clamping length		Dimensions [mm]													Max. Speed	
Type	D	L	L1	K	K1	S	S1	U	Y	R	O	f	i	g	h	SW	[rpm]	
FAV	36	•	125	107	11	11	18	18	6	4.5	2	7	5.3	15	4.5	M5	9	45'000
FAV	36	•	160	142	11	11	18	18	6	4.5	2	7	5.3	15	4.5	M5	9	45'000
FAV	40	•	160	142	14	13.6	22	19	7	5.5	5	7	6.3	17	5	M6	12	40'000
FAV	45	•	160	142	14	13.6	22	19	7	5.5	5	7	6.3	17	5	M6	12	35'000
FAV	50	•	160	137	16	15.6	25	22	8	6.5	5	8	6.3	17	5	M6	14	30'000
FAV	60	•	160	137	24	23.6	32	29	11	8.5	6	8	8.3	22	5.5	M8	22	24'000
FAV	60	•	200	177	24	23.6	32	29	11	8.5	6	8	8.3	22	5.5	M8	22	24'000
FAV	60	•	250	227	24	23.6	32	29	11	8.5	6	8	8.3	22	5.5	M8	22	24'000
FAV	80	•	200	177	34	33.6	45	42	13	11	6	10	12.3	30	8	M12	30	17'000
FAV	80	•	250	227	34	33.6	45	42	13	11	6	10	12.3	30	8	M12	30	17'000
FAV	80	•	315	292	34	33.6	45	42	13	11	6	10	12.3	30	8	M12	30	17'000
FAV	100	•	250	227	48	48	65	65	13	11	3	10	12.3	30	8	M12	41	12'000
FAV	100	•	315	292	48	48	65	65	13	11	3	10	12.3	30	8	M12	41	12'000
FAV	120	•	250	222	54	53.6	72	69	13	11	6	14	12.3	30	8	M12	46	8'000
FAV	120	•	315	287	54	53.6	72	69	13	11	6	14	12.3	30	8	M12	46	8'000

Direction of rotation to R or L (please specify without fail when ordering)

Sample order: FAV36R125 or FAV36L125



Fortuna FAV series

Extra-long spindles with cylindrical spindle bush for belt drive

The clutch shaft principle as a tried and trusted design feature offers unbeaten results, even in the case of difficult machining jobs with deep drilled holes.

- External taper on working side
- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system
- Spindles are completely balanced dynamically
- Taper true running ≤ 0.002 mm
- Diameter to length ratio of up to 1:15 possible

Options/special solutions:

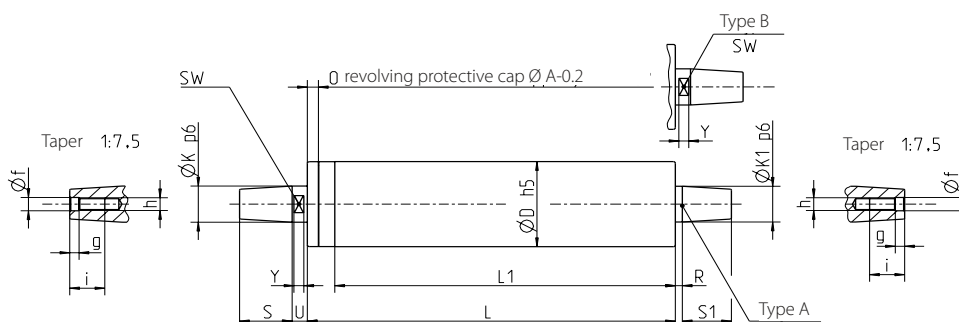
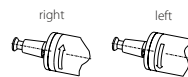
- Right/left protection
- Air seal
- Other Dimensions and versions on request



Description		Clamping length			Dimensions [mm]														Max. Speed
Type	D	L	L1	Type	K	K1	S	S1	U	Y	R	O	f	i	g	h	SW	[rpm]	
FAV	36	•	355	337	B	11	11	18	18	6	4.5	6	7	5.3	15	4.5	M5	9	18'000
FAV	40	•	400	382	B	14	13.6	22	19	7	5.5	10	7	6.3	17	5	M6	12	16'000
FAV	45	•	400	382	B	14	13.6	22	19	7	5.5	10	7	6.3	17	5	M6	12	16'000
FAV	50	•	400	377	B	16	16	25	25	8	6.5	8	8	6.3	17	5	M6	14	16'000
FAV	50	•	500	477	B	16	16	25	25	8	6.5	8	8	6.3	17	5	M6	14	12'000
FAV	60	•	500	477	B	24	23.6	32	29	11	8.5	14	8	8.3	22	5.5	M8	22	16'000
FAV	60	•	630	607	B	24	24	32	32	11	8.5	11	8	8.3	22	5.5	M8	22	16'000
FAV	80	•	500	477	B	34	34	45	45	13	11	13	10	12.3	30	8	M12	30	15'000
FAV	80	•	630	607	B	34	34	45	45	13	11	13	10	12.3	30	8	M12	30	12'000
FAV	80	•	800	777	B	34	34	45	45	13	11	13	10	12.3	30	8	M12	30	9'000
FAV	100	•	630	607	A	48	48	65	65	13	11	3	10	12.3	30	8	M12	41	10'000
FAV	100	•	1000	977	B	48	48	65	65	13	11	13	10	12.3	30	8	M12	41	6'000
FAV	100	•	1250	1227	B	48	48	65	65	13	11	13	10	12.3	30	8	M12	41	5'000
FAV	120	•	800	772	B	54	54	72	72	13	11	13	14	12.3	30	8	M12	46	7'000
FAV	120	•	1250	1222	B	54	54	72	72	13	11	13	14	12.3	30	8	M12	46	5'000

Direction of rotation to R or L (please specify without fail when ordering)

Sample order: FAV36R355 or FAV36L355



Fortuna FAV series

Extra-long spindles with stepped spindle housing for belt drive

These spindles are especially suitable for the internal grinding of holes with a large thickness ratio. The clutch shaft principle as a tried and trusted design feature offers unbeaten results, even in the case of difficult machining jobs with deep drilled holes.

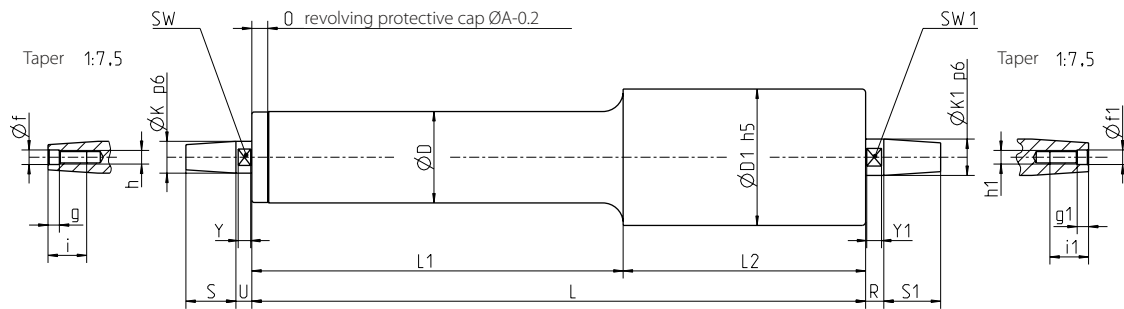
- External taper on working side
- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system
- Spindles are completely dynamically balanced
- Taper true running ≤ 0.002 mm
- Diameter to length ratio of up to 1:15 possible

Options/special solutions:

- Right/left protection
- Other Dimensions and versions on request



Description		Dimensions [mm]																						max. Speed	
Type	D. D1	L	L1	L2	K	K1	S	S1	U	Y	Y1	R	O	f	f1	i	i1	g	g1	h	h1	SW	SW1	[rpm]	
FAV	25.60	•	335	175	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	25'000
FAV	25.60	•	380	220	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	25'000
FAV	25.60	•	450	290	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	25'000
FAV	25.60	•	530	370	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	25'000
FAV	25.80	•	530	290	240	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	25'000
FAV	28.60	•	450	290	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	23'000
FAV	28.80	•	530	290	240	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	23'000
FAV	28.80	•	630	390	240	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	23'000
FAV	32.60	•	450	290	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	20'000
FAV	32.60	•	530	370	160	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	20'000
FAV	32.80	•	530	290	240	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	20'000
FAV	32.80	•	630	390	240	9	16	15	25	6	4.5	6.5	8	7	4.2	6.3	12	17	3.5	5	M4	M6	8	14	20'000
FAV	36.60	•	450	290	160	11	16	18	25	6	4.5	6.5	8	7	5.3	6.3	14	17	4.5	5	M5	M6	9	14	18'000
FAV	36.60	•	530	370	160	11	16	18	25	6	4.5	6.5	8	7	5.3	6.3	14	17	4.5	5	M5	M6	9	14	18'000
FAV	36.80	•	530	290	240	11	16	18	25	6	4.5	6.5	8	7	5.3	6.3	14	17	4.5	5	M5	M6	9	14	18'000
FAV	36.80	•	630	390	240	11	16	18	25	6	4.5	6.5	8	7	5.3	6.3	14	17	4.5	5	M5	M6	9	14	18'000



Description		Dimensions [mm]																						max. Speed	
Type	D, D1	L	L1	L2	K	K1	S	S1	U	Y	Y1	R	O	f	f1	i	i1	g	g1	h	h1	SW	SW1	[rpm]	
FAV	42.60	•	450	290	160	14	16	22	25	7	5.5	6.5	8	7	6.3	6.3	17	17	5	5	M6	M6	12	14	15'000
FAV	42.60	•	530	370	160	14	16	22	25	7	5.5	6.5	8	7	6.3	6.3	17	17	5	5	M6	M6	12	14	15'000
FAV	42.60	•	630	470	160	14	16	22	25	7	5.5	6.5	8	7	6.3	6.3	17	17	5	5	M6	M6	12	14	15'000
FAV	42.80	•	630	390	240	14	16	22	25	7	5.5	6.5	8	7	6.3	6.3	17	17	5	5	M6	M6	12	14	15'000
FAV	50.60	•	630	470	160	16	16	25	25	8	6.5	6.5	8	8	6.3	6.3	17	17	5	5	M6	M6	14	14	13'000
FAV	50.80	•	530	290	240	16	16	25	25	8	6.5	6.5	8	8	6.3	6.3	17	17	5	5	M6	M6	14	14	13'000
FAV	50.80	•	630	390	240	16	16	25	25	8	6.5	6.5	8	8	6.3	6.3	17	17	5	5	M6	M6	14	14	13'000
FAV	60.80	•	700	460	240	24	24	32	32	11	8.5	8.5	11	8	8.3	8.3	22	22	5.5	5.5	M8	M8	22	22	11'000
FAV	80.100	•	800	560	240	34	34	45	45	13	11	11	13	10	12	12.3	30	30	8	8	M12	M12	30	30	8'000
FAV	90.100	•	900	660	240	34	34	45	45	13	11	11	13	10	12	12.3	30	30	8	8	M12	M12	30	30	7'000
FAV	100.120	•	1000	700	300	48	48	65	65	13	11	11	13	10	12	12.3	30	30	8	8	M12	M12	41	41	6'500
FAV	110.120	•	1200	900	300	48	48	65	65	13	11	11	13	10	12	12.3	30	30	8	8	M12	M12	41	41	6'000

Direction of rotation to R or L (please specify without fail when ordering)

Sample order: FAV25.60R335 oder FAV25.60L335



Fortuna FIV series

Standard spindles for belt drive with internal taper on the working side

The spindles in the FIV range are tool holders designed for the most varied areas of application. Many tried and tested design features have been implemented into this series.

- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system
- Spindles are completely balanced dynamically
- Taper true running ≤ 0.002 mm

Options/special solutions:

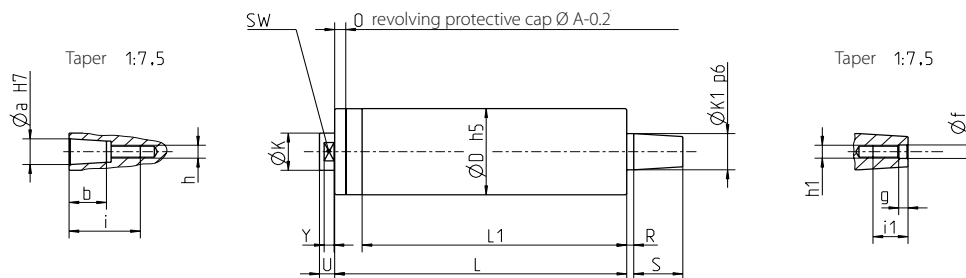
- Air seal
- Other Dimensions and versions on request



Description		Clamping length		Dimensions [mm]																	max. Speed
Type	D	L	L1	K	K1	S	U	Y	R	O	a	b	f	i	i1	g	h	h1	SW	[rpm]	
FIV	45	• 160	142	15	14	19	7	4.5	5	7	10	15	6.3	23	17	5	M4	M6	12	35'000	
FIV	60	• 160	137	25	24	29	11	6.5	6	8	16	25	8.3	45	22	5.5	M8	M8	22	24'000	
FIV	60	• 250	227	25	24	29	11	6.5	6	8	16	25	8.3	45	22	5.5	M8	M8	22	24'000	
FIV	80	• 250	227	35	34	42	13	8.5	6	10	24	32	12	61	30	8	M12	M12	30	17'000	
FIV	80	• 315	292	35	34	42	13	8.5	6	10	24	32	12	61	30	8	M12	M12	30	17'000	
FIV	100	• 250	227	50	48	65	15	8.5	3	10	34	45	12	74	30	8	M12	M12	41	12'000	

Direction of rotation to R or L (please specify without fail when ordering)

Sample order: FIV45R160 oder FIV45L160



Fortuna M32/34 series

Spindles with air-cooled, three-phase, built-on motor

All motor spindles guarantee optimal all-round quiet operation, maximum rotational speed and the highest levels of precision. The clutch shaft principle as a tried and trusted design feature offers unbeaten results, even in the case of difficult machining jobs with deep drilled holes.

- External taper on working side
- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system
- Spindles are completely balanced dynamically
- Taper true running ≤ 0.002 mm
- Drive via frequency converter or direct connection to main power supply
- Diameter to length ratio of up to 1:15 possible

Options/special solutions:

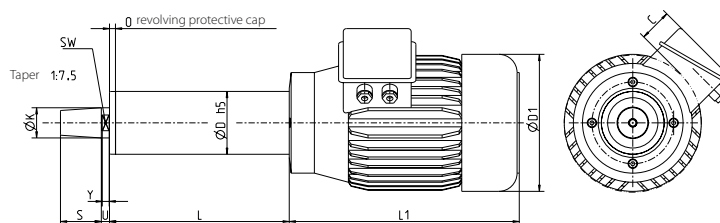
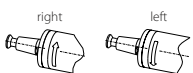
- Right/left protection, air seal, water-cooled motor
- Manual HSK tool interface
- Other Dimensions, motor specifications and versions on request



Description		Dimensions [mm]								Motor + Motorflange			Speed [rpm] for Spindle with		max. Power
Type	D	L	K	S	U	Y	O	SW	D1	L1	C	Standard cooling	Fan cooling	[kW]	
M32-FAVY	40	• 150	14	22	7				127	208	50	2'800		0.55	
M32-FAV	60	• 190	24	32	11	8.5	8	22	176	370	42		3.000-21.000	1.5	
M32-FAV	60	• 190	24	32	11	8.5	8	22	176	291	42	3'000		2.2	
M32-FAV	60	• 355	24	32	11	8.5	8	22	176	291	42	3'000		2.2	
M32-FAV	60	• 455	24	32	11	8.5	8	22	176	291	42	3'000		2.2	
M32-FAV	80	• 220	34	45	13	11	10	30	194	416	42		3.000-15.000	3.0	
M32-FAV	80	• 220	34	45	13	11	10	30	194	346	42	3'000		3.0	
M32-FAV	80	• 405	34	45	13	11	10	30	194	346	42	3'000		3.0	
M32-FAV	80	• 585	34	45	13	11	10	30	194	346	42	3'000		3.0	
M34-FAV	100	• 285	48	65	13	11	10	41	218	366	51	1'500		4.0	
M32-FAV	100	• 285	48	65	13	11	10	41	218	460	51		3.000-12.000	4.0	
M32-FAV	100	• 285	48	65	13	11	10	41	218	366	51	3'000		4.0	
M32-FAV	100	• 400	48	65	13	11	10	41	218	366	51	3'000		4.0	
M32-FAV	100	• 570	48	65	13	11	10	41	218	366	51	3'000		4.0	
M32-FAV	100	• 740	48	65	13	11	10	41	218	366	51	3'000		4.0	
M34-FAV	120	• 326	54	72	13	11	14	46	258	447	66	1'500		7.5	
M32-FAV	120	• 326	54	72	13	11	14	46	258	490	66		3.000-8.000	5.5	
M32-FAV	120	• 326	54	72	13	11	14	46	258	409	66	3'000		5.5	
M32-FAV	120	• 440	54	72	13	11	14	46	258	409	66	3'000		5.5	
M32-FAV	120	• 740	54	72	13	11	14	46	258	409	66	3'000		5.5	
M32-FAV	120	• 940	54	72	13	11	14	46	258	409	66	3'000		5.5	

Direction of rotation to R or L (please specify without fail when ordering)

Sample order M32-FAVY40R150 or M32-FAVY40L150 and specify Speed / Power



Fortuna M34 series

High-performance grinding spindles with a water-cooled asynchronous motor

All motor spindles guarantee optimal all-round quiet operation, maximum rotational speed and the highest levels of precision. The clutch shaft principle as a tried and trusted design feature offers unbeaten results, even in the case of difficult machining jobs with deep drilled holes.

- External taper on working side
- Pre-tensioning of the precision bearing groups using a spring system that does not have to be readjusted
- Long-lasting grease lubrication
- Non-wearing labyrinth seal system with air seal
- Spindles are completely dynamically balanced
- Taper true running ≤ 0.002 mm
- Drive via frequency converter
- Diameter to length ratio of up to 1:15 possible

Options/special solutions:

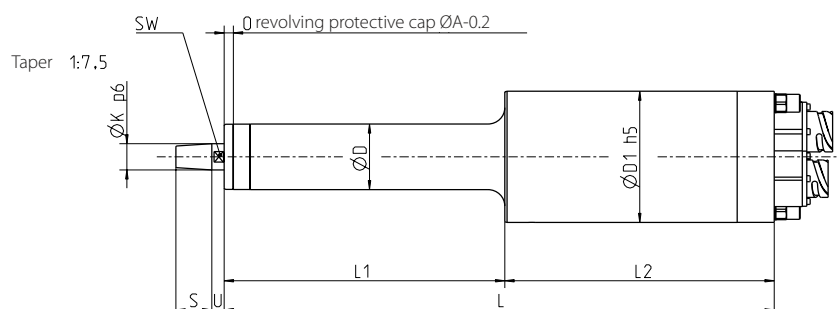
- Right/left protection, manual HSK tool interface
- Other Dimensions, motor specifications and versions on request



Description			Dimensions [mm]								max. Speed	max. Power
Type	D. D1	L	L1	L2	K	S	U	O	SW	[rpm]	kW (S1)	
M34-FAVY	36.120	•	440	220	220	11	18	6	7	9	20'000	3,0
M34-FAVY	36.120	•	520	300	220	11	18	6	7	9	20'000	3,0
M34-FAVY	42.120	•	600	380	220	11	18	6	7	9	20'000	3,0
M34-FAVY	45.120	•	780	540	240	11	18	6	7	9	20'000	3,0
M34-FAVY	50.120	•	490	250	240	16	25	8	8	14	20'000	4,0
M34-FAVY	50.120	•	570	350	220	16	25	8	8	14	20'000	3,0
M34-FAVY	60.120	•	490	250	240	24	32	11	8	22	12'000	4,0
M34-FAVY	60.120	•	620	380	240	24	32	11	8	22	12'000	4,0
M34-FAVY	60.120	•	690	450	240	24	32	11	8	22	12'000	4,0
M34-FAVY	60.120	•	740	500	240	24	32	11	8	22	12'000	4,0
M34-FAVY	70.120	•	660	420	240	28	40	11	8	24	15'000	4,0
M34-FAVY	100.120	•	590	350	240	34	45	13	10	30	20'000	4,0
M34-FAVY	100.120	•	620	380	240	34	45	13	10	30	20'000	4,0

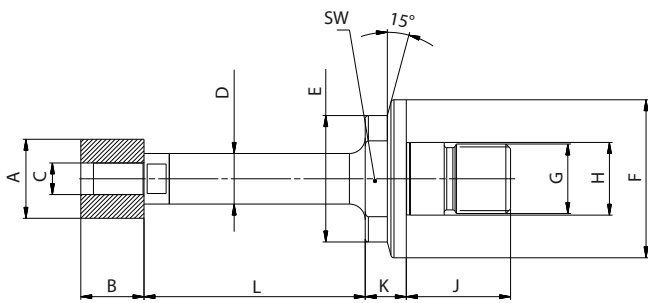
Direction of rotation to R or L (please specify without fail when ordering)

Sample order: M34-FAVY36.120R440 or M34-FAVY36.120L440



Accessories – guarantee of quality and operating safety

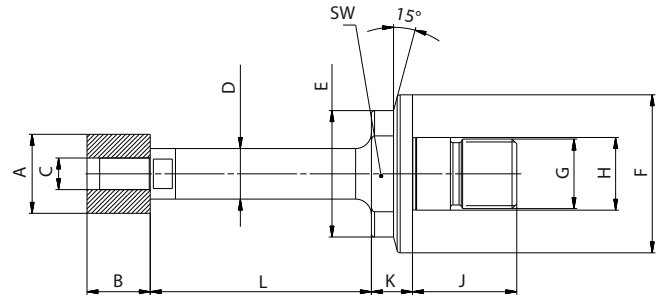
- Extensive range of accessories to help you achieve the best possible grinding results
- Guarantees maximum operating safety
- Most items available from stock
- Custom-made special mandrels made out of special materials (DENAL, FERROTITANIT, tungsten carbide) available on request
- Calculation of critical rotational speed as a free service



Internal grinding arbor HJND-16 right made of steel, case-hardened

Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-16 2030	25	35	50	60	M 27x2	28	42	16	41	40	30	16	52204-150	
HJND-16 2060	25	75	50	60	M 27x2	28	42	16	41	40	30	16	52204-151	
HJND-16 2090	25	115	50	60	M 27x2	28	42	16	41	40	30	16	52204-152	
HJND-16 2535	32	40	50	60	M 27x2	28	42	16	41	50	36	20	52204-153	
HJND-16 2575	32	90	50	60	M 27x2	28	42	16	41	50	36	20	52204-154	
HJND-16 25115	32	140	50	60	M 27x2	28	42	16	41	50	36	20	52204-155	
HJND-16 3240	40	50	50	60	M 27x2	28	42	16	41	63	42	25	52204-156	
HJND-16 3290	40	110	50	60	M 27x2	28	42	16	41	63	42	25	52204-157	
HJND-16 32140	40	170	50	60	M 27x2	28	42	16	41	63	42	25	52204-158	
HJND-16 4050	50	60	50	60	M 27x2	28	42	16	41	80	50	32	52204-159	
HJND-16 40110	50	130	50	60	M 27x2	28	42	16	41	80	50	32	52204-160	
HJND-16 40170	50	200	50	60	M 27x2	28	42	16	41	80	50	32	52204-161	
HJND-16 5060	50	60	50	60	M 27x2	28	42	16	41	80	50	32	new	
HJND-16 50130	50	130	50	60	M 27x2	28	42	16	41	80	50	32	new	
HJND-16 50200	50	200	50	60	M 27x2	28	42	16	41	80	50	32	new	

Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request

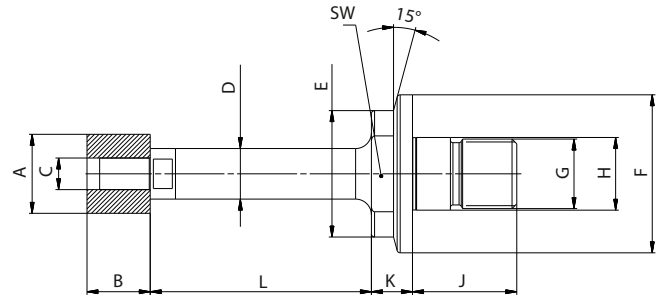


Internal grinding arbor HJND-21 right

made of steel, case-hardened

Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-21 716	7	16	40	50	M22x1,5	23	33	13	32	12	10	4	103160	
HJND-21 725	7	25	40	50	M22x1,5	23	33	13	32	12	10	4	103161	
HJND-21 736	7	36	40	50	M22x1,5	23	33	13	32	12	10	4	103162	
HJND-21 918	9	18	40	50	M22x1,5	23	33	13	32	15	12	6	101671	
HJND-21 930	9	30	40	50	M22x1,5	23	33	13	32	15	12	6	101673	
HJND-21 945	9	45	40	50	M22x1,5	23	33	13	32	15	12	6	101674	
HJND-21 1220	12	20	40	50	M22x1,5	23	33	13	32	20	15	8	101675	
HJND-21 1235	12	35	40	50	M22x1,5	23	33	13	32	20	15	8	101676	
HJND-21 1250	12	50	40	50	M22x1,5	23	33	13	32	20	15	8	101677	
HJND-21 1625	16	25	40	50	M22x1,5	23	33	13	32	25	20	10	52004-150	
HJND-21 1645	16	45	40	50	M22x1,5	23	33	13	32	25	20	10	52004-151	
HJND-21 1665	16	65	40	50	M22x1,5	23	33	13	32	25	20	10	52004-152	
HJND-21 2030	20	30	40	50	M22x1,5	23	33	13	32	32	25	13	52004-153	
HJND-21 2060	20	60	40	50	M22x1,5	23	33	13	32	32	25	13	52004-154	
HJND-21 2090	20	90	40	50	M22x1,5	23	33	13	32	32	25	13	52004-155	
HJND-21 2535	25	35	40	50	M22x1,5	23	33	13	32	40	30	16	52004-156	
HJND-21 2575	25	75	40	50	M22x1,5	23	33	13	32	40	30	16	52004-157	
HJND-21 25115	25	115	40	50	M22x1,5	23	33	13	32	40	30	16	52004-158	
HJND-21 3240	32	40	40	50	M22x1,5	23	33	13	32	50	36	20	52004-159	
HJND-21 3290	32	90	40	50	M22x1,5	23	33	13	32	50	36	20	52004-160	
HJND-21 32140	32	140	40	50	M22x1,5	23	33	13	32	50	36	20	52004-161	
HJND-21 4050	40	50	40	50	M22x1,5	23	33	13	32	63	42	25	30335-240	
HJND-21 40110	40	110	40	50	M22x1,5	23	33	13	32	63	42	25	30335-241	
HJND-21 40170	40	170	40	50	M22x1,5	23	33	13	32	63	42	25	30335-242	

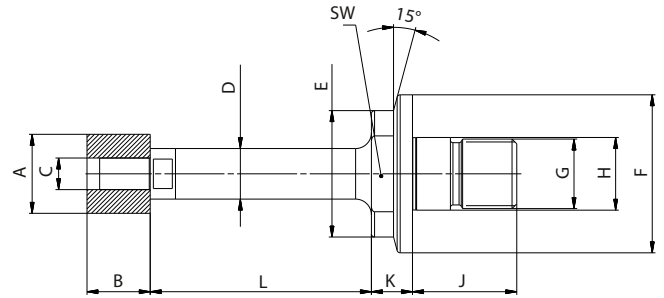
Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request



Internal grinding arbor HJND-28 right
made of steel, case-hardened

Type	Dimensions [mm]									Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C	
HJND-28 514	5	14	30	38	M16x1,5	17	29	12	24	10	8	3	103156
HJND-28 528	5	28	30	38	M16x1,5	17	29	12	24	10	8	3	103158
HJND-28 716	7	16	30	38	M16x1,5	17	29	12	24	12	10	4	101679
HJND-28 725	7	25	30	38	M16x1,5	17	29	12	24	12	10	4	101680
HJND-28 736	7	36	30	38	M16x1,5	17	29	12	24	12	10	4	101681
HJND-28 918	9	18	30	38	M16x1,5	17	29	12	24	15	12	6	30335-160
HJND-28 930	9	30	30	38	M16x1,5	17	29	12	24	15	12	6	30335-161
HJND-28 945	9	45	30	38	M16x1,5	17	29	12	24	15	12	6	30335-162
HJND-28 1220	12	20	30	38	M16x1,5	17	29	12	24	20	16	8	51804-150
HJND-28 1235	12	35	30	38	M16x1,5	17	29	12	24	20	16	8	51804-151
HJND-28 1250	12	50	30	38	M16x1,5	17	29	12	24	20	16	8	51804-152
HJND-28 1625	16	25	30	38	M16x1,5	17	29	12	24	25	20	10	51804-153
HJND-28 1645	16	45	30	38	M16x1,5	17	29	12	24	25	20	10	51804-154
HJND-28 1665	16	65	30	38	M16x1,5	17	29	12	24	25	20	10	51804-155
HJND-28 2030	20	30	30	38	M16x1,5	17	29	12	24	32	25	13	51804-156
HJND-28 2060	20	60	30	38	M16x1,5	17	29	12	24	32	25	13	51804-157
HJND-28 2090	20	90	30	38	M16x1,5	17	29	12	24	32	25	13	51804-158
HJND-28 2535	25	35	30	38	M16x1,5	17	29	12	24	40	30	16	51804-159
HJND-28 2575	25	75	30	38	M16x1,5	17	29	12	24	40	30	16	51804-160
HJND-28 25115	25	115	30	38	M16x1,5	17	29	12	24	40	30	16	51804-161

Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request



Internal grinding arbor HJND-35 right

made of steel, case-hardened

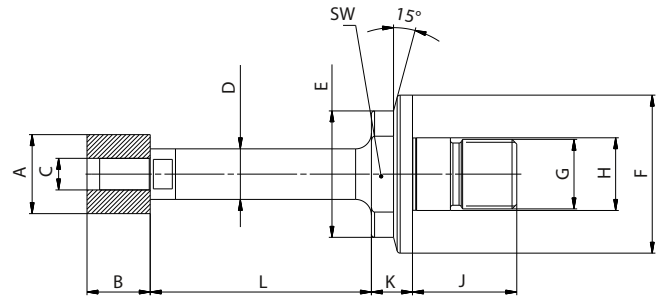
Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-35 918	9	18	24	32	M14x1,5	15	27	10,5	19	16	13	6	51704-150	
HJND-35 930	9	30	24	32	M14x1,5	15	27	10,5	19	16	13	6	51704-151	
HJND-35 945	9	45	24	32	M14x1,5	15	27	10,5	19	16	13	6	51704-152	
HJND-35 1220	12	20	24	32	M14x1,5	15	27	10,5	19	20	16	8	51704-153	
HJND-35 1235	12	35	24	32	M14x1,5	15	27	10,5	19	20	16	8	51704-154	
HJND-35 1250	12	50	24	32	M14x1,5	15	27	10,5	19	20	16	8	51704-155	
HJND-35 1625	16	25	24	32	M14x1,5	15	27	10,5	19	25	20	10	51704-156	
HJND-35 1645	16	45	24	32	M14x1,5	15	27	10,5	19	25	20	10	51704-157	
HJND-35 1665	16	65	24	32	M14x1,5	15	27	10,5	19	25	20	10	51704-158	
HJND-35 2030	20	30	24	32	M14x1,5	15	27	10,5	19	32	25	13	51704-159	
HJND-35 2060	20	60	24	32	M14x1,5	15	27	10,5	19	32	25	13	51704-160	
HJND-35 2090	20	90	24	32	M14x1,5	15	27	10,5	19	32	25	13	51704-161	

Internal grinding arbor HJND-42 right

made of steel, case-hardened

Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-42 716	7	16	21	26	M10	10,5	21	9,5	17	12	11	4	51703-150	
HJND-42 725	7	25	21	26	M10	10,5	21	9,5	17	12	11	4	51703-151	
HJND-42 736	7	36	21	26	M10	10,5	21	9,5	17	12	11	4	51703-152	
HJND-42 918	9	18	21	26	M10	10,5	21	9,5	17	16	13	6	51703-153	
HJND-42 930	9	30	21	26	M10	10,5	21	9,5	17	16	13	6	51703-154	
HJND-42 945	9	45	21	26	M10	10,5	21	9,5	17	16	13	6	51703-155	
HJND-42 1220	12	20	21	26	M10	10,5	21	9,5	17	20	16	8	51703-156	
HJND-42 1235	12	35	21	26	M10	10,5	21	9,5	17	20	16	8	51703-157	
HJND-42 1250	12	50	21	26	M10	10,5	21	9,5	17	20	16	8	51703-158	
HJND-42 1625	16	25	21	26	M10	10,5	21	9,5	17	25	20	10	51703-159	
HJND-42 1645	16	45	21	26	M10	10,5	21	9,5	17	25	20	10	51703-160	
HJND-42 1665	16	65	21	26	M10	10,5	21	9,5	17	25	20	10	51703-161	

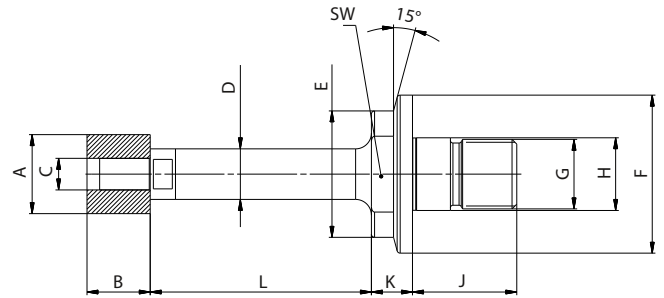
Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request



Internal grinding arbor HJND-50 right
made of steel, case-hardened

Type	Dimensions [mm]									Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C	
HJND-50 412	4	12	16.5	23	M8	8.5	19.5	8.5	13	7	6,5	2,5	30335-100
HJND-50 418	4	18	16.5	23	M8	8.5	19.5	8.5	13	7	6,5	2,5	30335-101
HJND-50 424	4	24	16.5	23	M8	8.5	19.5	8.5	13	7	6,5	2,5	30335-102
HJND-50 514	5	14	16.5	23	M8	8.5	19.5	8.5	13	9	9	3	51702-150
HJND-50 520	5	20	16.5	23	M8	8.5	19.5	8.5	13	9	9	3	51702-151
HJND-50 528	5	28	16.5	23	M8	8.5	19.5	8.5	13	9	9	3	51702-152
HJND-50 716	7	16	16.5	23	M8	8.5	19.5	8.5	13	12	11	4	51702-153
HJND-50 725	7	25	16.5	23	M8	8.5	19.5	8.5	13	12	11	4	51702-154
HJND-50 736	7	36	16.5	23	M8	8.5	19.5	8.5	13	12	11	4	51702-155
HJND-50 918	9	18	16.5	23	M8	8.5	19.5	8.5	13	16	13	6	51702-156
HJND-50 930	9	30	16.5	23	M8	8.5	19.5	8.5	13	16	13	6	51702-157
HJND-50 945	9	45	16.5	23	M8	8.5	19.5	8.5	13	16	13	6	51702-158
HJND-50 1220	12	20	16.5	23	M8	8.5	19.5	8.5	13	20	16	8	51702-159
HJND-50 1235	12	35	16.5	23	M8	8.5	19.5	8.5	13	20	16	8	51702-160
HJND-50 1250	12	50	16.5	23	M8	8.5	19.5	8.5	13	20	16	8	51702-161

Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request



Internal grinding arbor HJND-60 right

made of steel, case-hardened

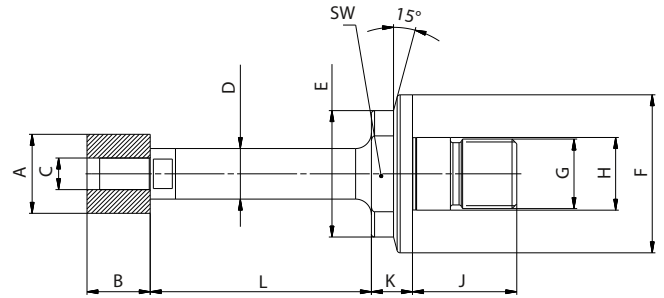
Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-60 412	4	12	14	20	M7	7.5	18	6.5	11	7	7	2.5	51701-150	
HJND-60 418	4	18	14	20	M7	7.5	18	6.5	11	7	7	2.5	51701-151	
HJND-60 424	4	24	14	20	M7	7.5	18	6.5	11	7	7	2.5	51701-152	
HJND-60 514	5	14	14	20	M7	7.5	18	6.5	11	9	9	3	51701-153	
HJND-60 520	5	20	14	20	M7	7.5	18	6.5	11	9	9	3	51701-154	
HJND-60 528	5	28	14	20	M7	7.5	18	6.5	11	9	9	3	51701-155	
HJND-60 716	7	16	14	20	M7	7.5	18	6.5	11	12	11	4	51701-156	
HJND-60 725	7	25	14	20	M7	7.5	18	6.5	11	12	11	4	51701-157	
HJND-60 736	7	36	14	20	M7	7.5	18	6.5	11	12	11	4	51701-158	
HJND-60 918	9	18	14	20	M7	7.5	18	6.5	11	16	13	6	51701-159	
HJND-60 930	9	30	14	20	M7	7.5	18	6.5	11	16	13	6	51701-160	
HJND-60 945	9	45	14	20	M7	7.5	18	6.5	11	16	13	6	51701-161	

Internal grinding arbor HJND-70 right

made of steel, case-hardened

Type	Dimensions [mm]										Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C		
HJND-70 3510	3.5	10	13	18	M6	6.5	15.5	6.5	10	6	6	2	51700-150	
HJND-70 3515	3.5	15	13	18	M6	6.5	15.5	6.5	10	6	6	2	51700-151	
HJND-70 3520	3.5	20	13	18	M6	6.5	15.5	6.5	10	6	6	2	51700-152	
HJND-70 412	4	12	13	18	M6	6.5	15.5	6.5	10	7	7	2.5	51700-153	
HJND-70 418	4	18	13	18	M6	6.5	15.5	6.5	10	7	7	2.5	51700-154	
HJND-70 424	4	24	13	18	M6	6.5	15.5	6.5	10	7	7	2.5	51700-155	
HJND-70 514	5	14	13	18	M6	6.5	15.5	6.5	10	9	9	3	51700-156	
HJND-70 520	5	20	13	18	M6	6.5	15.5	6.5	10	9	9	3	51700-157	
HJND-70 528	5	28	13	18	M6	6.5	15.5	6.5	10	9	9	3	51700-158	
HJND-70 716	7	16	13	18	M6	6.5	15.5	6.5	10	12	11	4	51700-159	
HJND-70 725	7	25	13	18	M6	6.5	15.5	6.5	10	12	11	4	51700-160	
HJND-70 736	7	36	13	18	M6	6.5	15.5	6.5	10	12	11	4	51700-161	

Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request

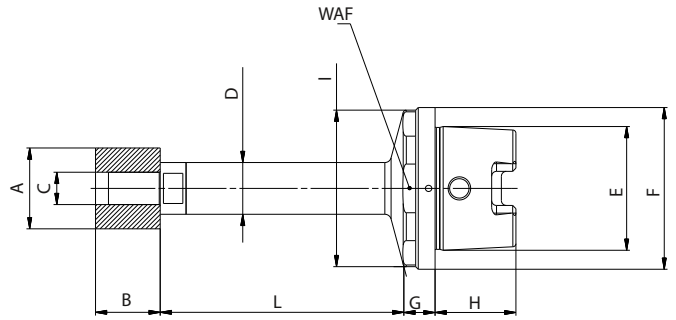


Internal grinding arbor HJND-80 right

made of steel, case-hardened

Type	Dimensions [mm]									Grinding wheel			Art. No.
	D	L	E	F	G	H	J	K	SW	A	B	C	
HJND-80 308	3	8	10.5	14.5	M5	5.5	13	5.5	8	5	5.5	2	51600-150
HJND-80 312	3	12	10.5	14.5	M5	5.5	13	5.5	8	5	5.5	2	51600-151
HJND-80 317	3	17	10.5	14.5	M5	5.5	13	5.5	8	5	5.5	2	51600-152
HJND-80 3510	3.5	10	10.5	14.5	M5	5.5	13	5.5	8	6	6	2	51600-153
HJND-80 3515	3.5	15	10.5	14.5	M5	5.5	13	5.5	8	6	6	2	51600-154
HJND-80 3520	3.5	20	10.5	14.5	M5	5.5	13	5.5	8	6	6	2	51600-155
HJND-80 412	4	12	10.5	14.5	M5	5.5	13	5.5	8	7	7	2.5	51600-156
HJND-80 418	4	18	10.5	14.5	M5	5.5	13	5.5	8	7	7	2.5	51600-157
HJND-80 424	4	24	10.5	14.5	M5	5.5	13	5.5	8	7	7	2.5	51600-158
HJND-80 514	5	14	10.5	14.5	M5	5.5	13	5.5	8	9	9	3	51600-159
HJND-80 520	5	20	10.5	14.5	M5	5.5	13	5.5	8	9	9	3	51600-160
HJND-80 528	5	28	10.5	14.5	M5	5.5	13	5.5	8	9	9	3	51600-161

Mandrels made of special materials DENAL, FERROTITANIT or tungsten carbide on request



Internal grinding arbor HSK-C25

Grinding arbors with cooling bore		Grinding arbors assembled with threaded stud				Dimensions [mm]									Grinding wheel		
Type	Art. No.	Type without cooling bore	Art. No. without cooling bore	Type with cooling bore	Art. No. with cooling bore	D	L	E	F	G	H	I	WAF	A	B	C	
C25-930 C25-945	30333-161 30333-126	HSKD-C25-930 HSKD-C25-945	30334-161 30334-162	HSKKD-C25-930 HSKKD-C25-945	30332-161 30332-162	9	30 45	19	25	12	13	23.4	21	16	13	6	
C25-1235 C25-1250	30333-166 30333-167	HSKD-C25-1235 HSKD-C25-1250	30334-166 30334-167	HSKKD-C25-1235 HSKKD-C25-1250	30332-166 30332-167	12	35 50	19	25	12	13	23.4	21	20	16	8	
C25-1645 C25-1665	30333-171 30333-172	HSKD-C25-1645 HSKD-C25-1665	30334-171 30334-172	HSKKD-C25-1645 HSKKD-C25-1665	30332-171 30332-172	16	45 65	19	25	12	13	23.4	21	25	20	10	
C25-2060 C25-2090	30333-176 30333-177	HSKD-C25-2060 HSKD-C25-2090	30334-176 30334-177	HSKKD-C25-2060 HSKKD-C25-2090	30332-176 30332-177	20	60 90	19	25	12	13	23.4	21	32	25	13	
C25-2575 C25-25115	30333-181 30333-182	HSKD-C25-2575 HSKD-C25-25115	30334-181 30334-182	HSKKD-C25-2575 HSKKD-C25-25115	30332-181 30332-182	25	63 103	19	25	12	13	23.4	21	40	30	16	

Internal grinding arbor HSK-C40

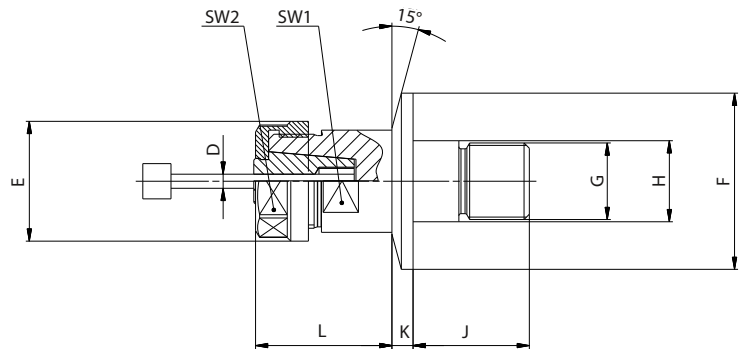
Grinding arbors with cooling bore		Grinding arbors assembled with threaded stud				Dimensions [mm]									Grinding wheel		
Type	Art. No.	Type without cooling bore	Art. No. without cooling bore	Type with cooling bore	Art. No. with cooling bore	D	L	E	F	G	H	I	WAF	A	B	C	
C40-1645 C40-1665	30333-221 30333-222	HSKD-C40-1645 HSKD-C40-1665	30334-221 30334-222	HSKKD-C40-1645 HSKKD-C40-1665	30332-221 30332-222	16	45 65	30	40	13	20	38.4	36	25	20	10	
C40-2060 C40-1290	30333-226 30333-227	HSKD-C40-2060 HSKD-C40-2090	30334-226 30334-227	HSKKD-C40-2060 HSKKD-C40-2090	30332-226 30332-227	20	60 90	30	40	13	20	38.4	36	32	25	13	
C40-2575 C40-25115	30333-231 30333-232	HSKD-C40-2575 HSKD-C40-25115	30334-231 30334-232	HSKKD-C40-2575 HSKKD-C40-25115	30332-231 30332-232	25	75 115	30	40	13	20	38.4	36	40	30	16	
C40-3290 C40-32140	30333-236 30333-237	HSKD-C40-3290 HSKD-C40-32140	30334-236 30334-237	HSKKD-C40-3290 HSKKD-C40-32140	30332-236 30332-237	32	90 140	30	40	13	20	38.4	36	50	36	20	
C40-40110 C40-40170	30333-241 30333-242	HSKD-C40-40110 HSKD-C40-40170	30334-241 30334-242	HSKKD-C40-40110 HSKKD-C40-40170	30332-241 30332-242	40	97 157	30	40	13	20	38.4	36	63	42	25	

Internal grinding arbor HSK-C50

Grinding arbors with cooling bore		Grinding arbors assembled with threaded stud				Dimensions [mm]								
Type	Art. No.	Type without cooling bore	Art. No. without cooling bore	Type with cooling bore	Art. No. with cooling bore	D	L	E	F	G	H	I	WAF	
x	x	HSKD-C50-2060 HSKD-C50-2090	107368 107369	x	x	20	60 90	38	50	11	25	48.4	46	
x	x	HSKD-C50-2575 HSKD-C50-25115	107326 107371	x	x	25	75 115	38	50	11	25	48.4	46	
x	x	HSKD-C50-3290 HSKD-C50-32140	107370 107372	x	x	32	90 140	38	50	11	25	48.4	46	
x	x	HSKD-C50-40110 HSKD-C50-170	107373 107374	x	x	40	110 170	38	50	11	25	48.4	46	

x Internal grinding arbor on request

Threaded stud for HSK-C50 internal grinding arbor without cooling bore refer to page 31



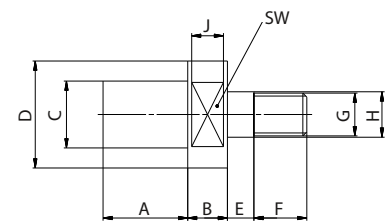
Collet mandrels HJNZ

Type	Collet	Dimensions [mm]										Art. No.
		D	E	F	G	H	J	K	L	SW1	SW2	
HJNZ-80	ER 8	1-5	12	14	M5	5.5	13	2.5	19	10		51600-100
HJNZ-70	ER 8	1-5	12	18	M6	6.5	15.5	3	19	10		51700-100
HJNZ-60	EX 12	1-6	19	20	M7	7.5	18	3.5	22	14	17	51701-100
HJNZ-50	EX 12	1-6	19	23	M8	8.5	19.5	4	23	14	17	51702-100
HJNZ-50	ER 11	1-7	19	23	M8	8.5	20	4	23	14	17	51702-102
HJNZ-42	ER 12	1-6.5	25	26	M10	11	21	5	26	17	22	51703-100
HJNZ-35	EX 16	1-10	28	32	M14x1.5	15	27	5	29	19	25	51704-100
HJNZ-28	EX 20	2-13	34	38	M16x1.5	17	29	7	33	22	30	51705-100
HJNZ-21	EX 25	2-16	34	50	M22x1.5	23	33	6	35	32		52004-100

Suitable clamping device assortment available from stock

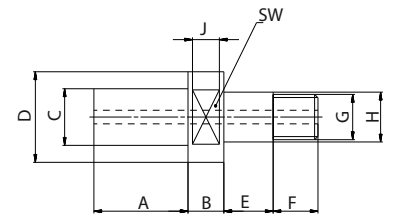
Threaded studs **without cooling bore** for HJND- and HSK- Internal grinding arbors

Type	Dimensions [mm]										Art. No.
	A	B	C	D	E	F	G	H	J	SW	
GB 3.5	5	3.5	2	3.5	2	4.5	M2.2	2.4	2.5	3	30243 - 012
GB 4	5.5	4	2.5	4	2.5	5	M2.5	2.7	2.5	3	30243 - 013
GB 5	6.5	4.5	3	5	3	6	M3	3.2	3	4	30243 - 014
GB 7	8	5.5	4	7	3.5	7	M4	4.2	4	5.5	30243 - 015
GB 9	10	6.5	6	9	4	8.5	M5	5.2	4.5	7	30243 - 016
GB 12	12	7	8	12	5	10	M6	6.2	5	9	30243 - 017
GB 16	16	8	10	16	6	12	M8	8.5	6	13	30243 - 018
GB 20	20	9	13	20	7	14	M10	10.5	6.5	17	30243 - 019
GB 25	24	12	16	25	8	16	M12	12.5	9	21	30243 - 020
GB 32	28	13	20	32	9	18	M14	15	10	27	30243 - 021
GB 40	32	15	25	40	10	20	M16	17	12	32	30243 - 022
GB 50	40	17	32	50	12	22	M18	19	13	41	30243 - 034



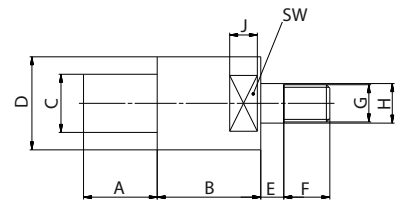
Threaded studs with cooling bore for HJND- and HSK-Internal grinding arbors

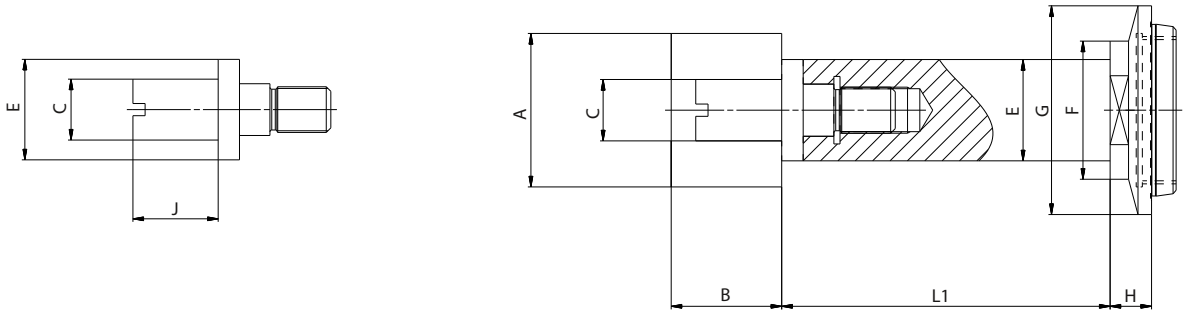
Type	Dimensions [mm]										Art. No.
	A	B	C	D	E	F	G	H	J	SW	
GBK 9	10	6.5	6	9	4	8.5	M5	5.2	2.5	7	30243 - 116
GBK 12	12	7	8	12	5	10	M6	6.2	5	9	30243 - 117
GBK 16	16	8	10	16	6	12	M8	8.5	6	13	30243 - 118
GBK 20	20	9	13	20	7	14	M10	10.5	6.5	17	30243 - 119
GBK 25	24	12	16	25	8	16	M12	12.5	9	21	30243 - 120
GBK 32	28	13	20	32	9	18	M14	15	10	27	30243 - 121
GBK 40	32	15	25	40	10	20	M16	17	12	32	30243 - 122



Grinding arbor extensions for HJND-Internal grinding arbor

Type	Dimensions [mm]										Art. No.
	A	B	C	D	E	F	G	H	J	SW	
DV 9-13	10	13	6	9	4	8.5	M5	5.2	4.5	7	30687 - 012
DV 12-15	12	15	8	12	5	10	M6	6.2	5	9	30687 - 013
DV 16-18	16	18	10	16	6	12	M8	8.2	6	13	30687 - 014
DV 20-24	20	24	13	20	7	14	M10	10.5	6.5	17	30687 - 015
DV 25-32	24	32	16	25	8	16	M12	12.5	9	21	30687 - 016
DV 32-38	28	39	20	32	9	18	M14	15	10	27	30687 - 017
DV 40-45	32	45	25	40	10	20	M16	17	12	32	30687 - 018
DV 50-52	40	52	32	50	12	22	M18	19	13	41	30687 - 019

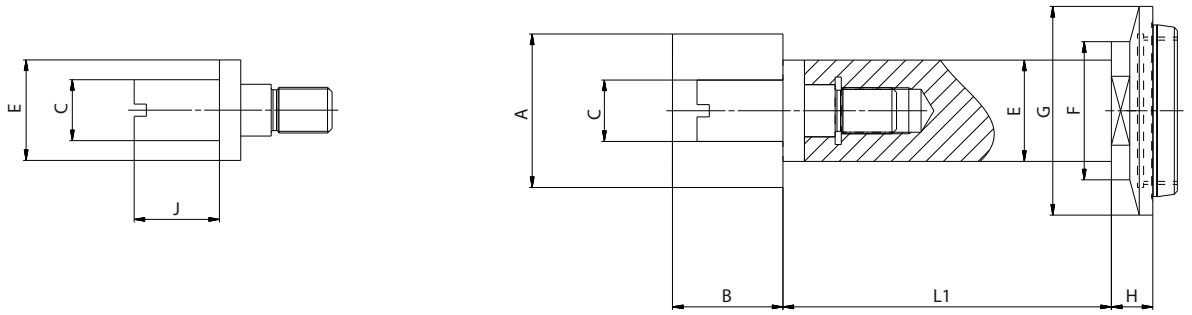




Internal grinding arbors and threaded studs for UJ–Spindles

UJD-Grinding arbors with assembled threaded studs							Threaded studs		Grinding Ø	Grinding wheel			
E	F	G	J	H	L1	Description	Art. No.	Description		Art. No.	A	B	C
5	14	32	5	12	20	520	31417-150	UJG-5	30241-012	6-11	8	8	2.5
					30	UJD-40X530	31417-151						
					40	540	31417-152						
7	14	32	7	12	20	720	31417-153	UJG-7	30241-013	8-16	12	11	4
					35	UJD-40X735	31417-154						
					50	750	31417-155						
10	14	32	10	12	30	1030	31417-156	UJG-10	30241-014	12-22	18	14	6
					45	UJD-40X1045	31417-157						
					60	1060	31417-158						
14	-	32	14	7	30	1430	31417-159	UJG-14	30241-015	16-30	22	18	9
					55	UJD-40x1455	31417-160						
					80	1480	31417-161						
7	18	38	7	13.5	20	720	31517-150	UJG-7	30241-013	8-16	12	11	4
					35	UJD-50X735	31517-151						
					50	750	31517-152						
10	18	38	10	13.5	30	1030	31517-153	UJG-10	30241-014	10-22	18	14	6
					45	UJD-50X1045	31517-154						
					60	1060	31517-155						
14	18	38	14	13.5	30	1430	31517-156	UJG-14	30241-015	16-30	22	18	9
					55	UJD-50X1455	31517-157						
					80	1480	31517-158						
18	-	38	18	7.5	40	1840	31517-159	UJG-18	30241-016	19-40	28	22	12
					70	UJD-50X1870	31517-160						
					100	18100	31517-161						
10	23	49	10	15.5	30	1030	31617-150	UJG-10	30241-014	12-22	18	14	6
					45	UJD-60X1045	31617-151						
					60	1060	31617-152						
14	23	49	14	15.5	30	1430	31617-153	UJG-14	30241-015	16-30	22	18	9
					55	UJD-60X1455	31617-154						
					80	1480	31617-155						
18	23	49	18	15.5	40	1840	31617-156	UJG-18	30241-016	19-40	28	22	12
					70	UJD-60-1870	31617-157						
					100	18100	31617-158						
23	-	49	21	8.5	40	2340	31617-159	UJG-23	30241-017	25-50	36	28	15
					80	UJD-60X2380	31617-160						
					120	23120	31617-161						

All Dimensions are in mm

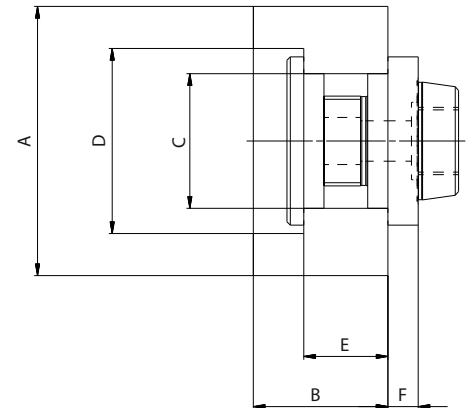


UJD-Grinding arbors with assembled threaded stud							Threaded studs		Grinding	Grinding wheel			
E	F	G	J	H	L1	Description	Art. No.	Description	Art. No.	Ø	A	B	C
14	29	58	14	18	30	1430	31717-150	UJG-14	30241-015	16-30	22	18	9
					55	UJD-70X1455	31717-151						
					80	1480	31717-152						
18	29	58	18	18	40	1840	31717-153	UJG-18	30241-016	19-40	28	22	12
					70	UJD-70X1870	31717-154						
					100	18100	31717-155						
23	29	58	21	18	40	2340	31717-156	UJG-23	30241-017	25-50	36	28	15
					80	UJD-70X2380	31717-157						
					120	23120	31717-158						
28	-	58	24	9.5	50	2850	31717-159	UJG-28	30241-018	32-70	45	32	18
					90	UJD-70X2890	31717-160						
					130	28130	31717-161						
18	33	68	18	22.5	40	1840	31817-150	UJG-18	30241-016	19-40	28	22	12
					70	UJD-80X1870	31817-151						
					100	18100	31817-152						
23	33	68	21	20.5	40	2340	31817-153	UJG-23	30241-017	25-50	36	28	15
					80	UJD-80X2380	31817-154						
					120	23120	31817-155						
28	33	68	24	20.5	50	2850	31817-156	UJG-28	30241-018	32-70	45	32	18
					90	UJD-80X2890	31817-157						
					130		31817-158						
33	-	68	28	11.5	50	3350	31817-159	UJG-33	30241-019	38-90	50	36	20
					100	UJD-80X33100	31817-160						
					150	33150	31817-161						

All Dimensions are in mm

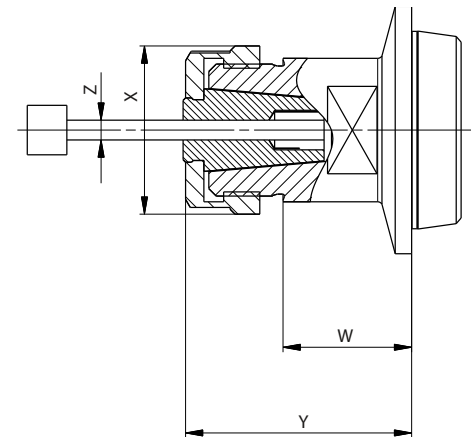
Grinding wheel flanges for UJ-Spindles

Spindle Type	Grinding flanges		Dimensions [mm]						Pulleys	max. Speed [rpm]
	Description	Art. No.	A	B	E	D	C	F		
UJ-40	UJP-40	31417-100	65	20	12	45	24	5	Ø50 / 60	9'500
UJ-50	UJP-50	31517-100	75	25	15	52	30	6	Ø60 / 75	7'600
UJ-60	UJP-60	31617-100	90	30	20	62	35	8	Ø75 / 90	6'300
UJ-70	UJP-70	31717-100	110	35	25	72	40	9	Ø90 / 105	5'400
UJ-80	UJP-80	31817-100	125	40	30	84	50	10	Ø105 / 125	4'500



Collet mandrels for UJ-Spindles

Spindle Type	Collet mandrel		Dimensions [mm]				Collet Type	Pulleys	max. Speed [rpm]
	Description	Art. No.	X	W	Y	Z			
UJ-40	UJZ-40	31417-110	32	15	38	0.5-10	EX 16	Ø25 / 30	28'000
UJ-50	UJZ-50	31517-110	35	18	44	0.5-13	EX 20	Ø32 / 38	23'000
UJ-60	UJZ-60	31617-110	42	18	47	1-16	EX 25	Ø40 / 46	18'000
UJ-70	UJZ-70	31717-110	50	20	52	2-20	EX 32	Ø50 / 58	14'000
UJ-80	UJZ-80	31817-110	63	22	61	4-26	EX 40	Ø60 / 70	12'000



Grinding flange FJ to HJNA-Taper

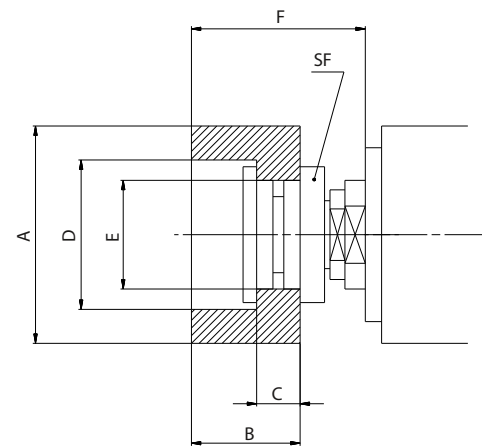
Type	Compatible to HJNA Taper	Art. No.
FJ-50	HJNA-35	30204-021
FJ-60	HJNA-28	30204-022
FJ-70	HJNA-21	30204-023
FJ-80	HJNA-16	30204-024

Work arbor HJNA to FJ-Grinding flange

Type	Compatible to FJ Grinding flange	G	Art. No.	Art. No. (S) = stainless
HJNA-35	FJ-50	M14x1.5	51704-427	
HJNA-28	FJ-60	M16x1.5	51804-429	
HJNA(S)-21	FJ-70	M22x1.5	52004-429	36035-002
HJNA-16	FJ-80	M27x2	52204-441	

Grinding wheel Dimensions to FJ-Grinding flange

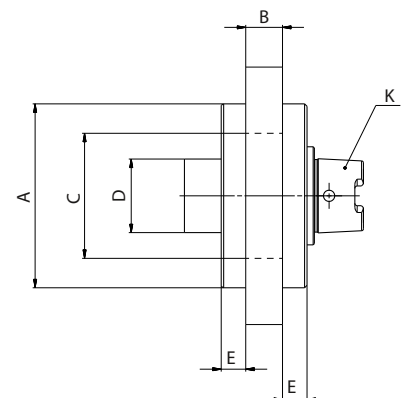
Grinding wheel flange	Arbor	Grinding wheel Dimensions [mm]					Dimension F
		A	B	C	D	E	
FJ-50	HJNA-35	80	40	16	55	40	64
FJ-60	HJNA-28	100	50	20	65	45	77
FJ-70	HJNA-21	125	63	25	75	50.8	95
FJ-80	HJNA-16	150	80	30	85	58	118

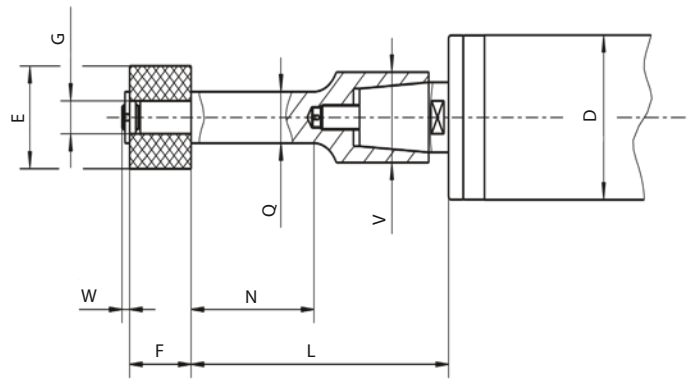


Grinding wheel flange with HSK-C-Interface

Type	Dimensions [mm]							Art. No.
	A	B	C	D	E	F	K	
HSK-C25	50	12	32	8	9	13	HSK-C25	30700-200
HSK-C40	75	10-20	51	30	10	20	HSK-C40	30700-400

other Dimensions at request



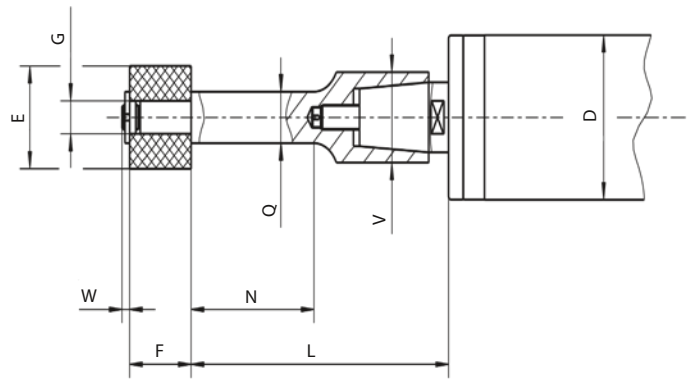


Internal grinding arbors for spindles FAV / M32-FAV / M34-FAV

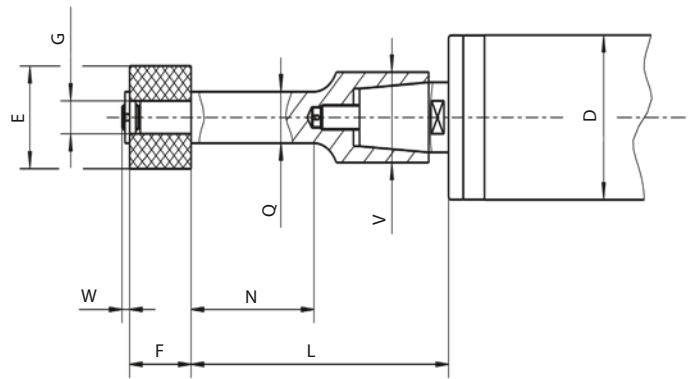
D	Art. No. ⁽¹⁾	Grinding arbor					Grinding wheel			Grinding range		
		Q	N	L	V	W	E	F	G	to Ø	depth	
36	33098.36.6x8	6	8	20	16	5	13	10	4	18	15	
	33098.36.6x16		16	58								23
	33098.36.6x25		25	67								32
	33098.36.6x32		32	74								40
36	33098.36.8x10	8	10	48	16	3	16	13	4	25	19	
	33098.36.8x25		25	63								33
	33098.36.8x32		32	70								41
	33098.36.8x40		40	78								48
36	33098.36.10x16	10	16	50	16	3	20	16	6	30	22	
	33098.36.10x32		32	66								43
	33098.36.10x40		40	74								51
	33098.36.10x50		50	84								61
40 / 45	33098.40.8x12	8	12	62	20	3	16	13	4	25	21	
	33098.40.8x25		25	75								34
	33098.40.8x32		32	82								41
	33098.40.8x40		40	90								49
40 / 45	33098.40.10x16	10	16	59	20	3	20	16	6	30	27	
	33098.40.10x32		32	75								43
	33098.40.10x40		40	83								51
	33098.40.10x50		50	93								61
40 / 45	33098.40.12x25	12	25	66	20	3	25	20	6	35	35	
	33098.40.12x40		40	81								54
	33098.40.12x50		50	91								64
	33098.40.12x63		63	104								77
50	33098.50.10x16	10	16	65	22	3	20	16	6	30	27	
	33098.50.10x32		32	81								43
	33098.50.10x40		40	89								51
	33098.50.10x50		50	99								61

All Dimensions are in mm

Grinding arbors can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



D	Art. No. ⁽¹⁾	Grinding arbor					Grinding wheel			Grinding range	
		Q	N	L	V	W	E	F	G	to Ø	depth
50	33098.50.12x25	12	25	71	22	3	25	20	6	35	35
	33098.50.12x40		40	86							54
	33098.50.12x50		50	96							64
	33098.50.12x63		63	109							77
50	33098.50.16x25	16	25	69	22	4	32	25	10	45	42
	33098.50.16x50		50	94							67
	33098.50.16x63		63	107							80
	33098.50.16x80		80	124							97
60	33098.60.12x25	12	25	93	32	3	25	20	6	35	39
	33098.60.12x40		40	108							54
	33098.60.12x50		50	118							64
	33098.60.12x63		63	131							77
	33098.60.16x25	16	25	88	32	4	32	25	10	45	42
	33098.60.16x50		50	113							67
	33098.60.16x63		63	126							80
	33098.60.16x80		80	143							97
	33098.60.20x32	20	32	94	32	3	40	32	13	55	54
	33098.60.20x63		63	125							85
	33098.60.20x80		80	142							102
	33098.60.20x100		100	162							122
80	33098.80.16x25	16	25	122	44	4	32	25	10	45	42
	33098.80.16x50		50	147							67
	33098.80.16x63		63	160							80
	33098.80.16x80		80	177							97
	33098.80.20x32	20	32	123	44	3	40	32	13	55	54
	33098.80.20x63		63	154							85
	33098.80.20x80		80	171							102
	33098.80.20x100		100	191							122
33098.80.25x40	25	40	128	44	3	50	40	16	65	67	
33098.80.25x80		80	168							107	

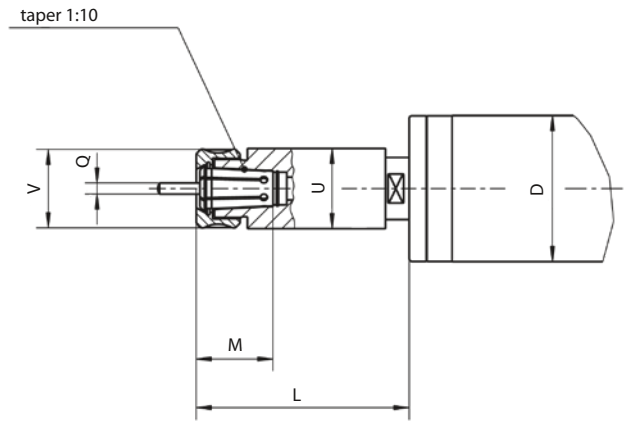


D	Art. Nr. ⁽¹⁾	Grinding arbor					Grinding wheel			Grinding range	
		Q	N	L	V	W	E	F	G	to Ø	depth
80	33098.80.25X100	25	100	188	44	3	50	40	16	65	127
	33098.80.25X125		125	213							152
100	33098.100.25X40	25	40	157	60	3	50	40	16	65	67
	33098.100.25x80		80	197							107
	33098.100.25x100		100	217							127
	33098.100.25x125		125	242							152
	33098.100.32x50	32	50	159	60	3					63
33098.100.32x100		100	209			127					
33098.100.32x125		125	234			152					
33098.100.32x160		160	269			187					
33098.100.40x63	40	63	171	60	4	80	25	32	100	80	
33098.100.40x125		125	233							142	
33098.100.40x160		160	268							177	
33098.100.40x200		200	308							217	
33098.120.32x50	32	50	177	68	3					63	40
33098.120.32x100		100	227			127					
33098.120.32x125		125	252			152					
33098.120.32x160		160	287			187					
33098.120.40x63	40	63	185	68	4	80	25	32	100		
33098.120.40x125		125	247							142	
33098.120.40x160		160	282							177	
33098.120.40x200		200	322							217	
33098.120.50x80	50	80	198	68	4					100	25
33098.120.50x160		160	278			177					
33098.120.50x200		200	318			217					
33098.120.50x250		250	368			267					

All Dimensions are in mm

(1) Direction of rotation to R or L (please specify without fail when ordering)
Sample order: 33098.36.6x8R or 33098.36.6x8L

Grinding arbors can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



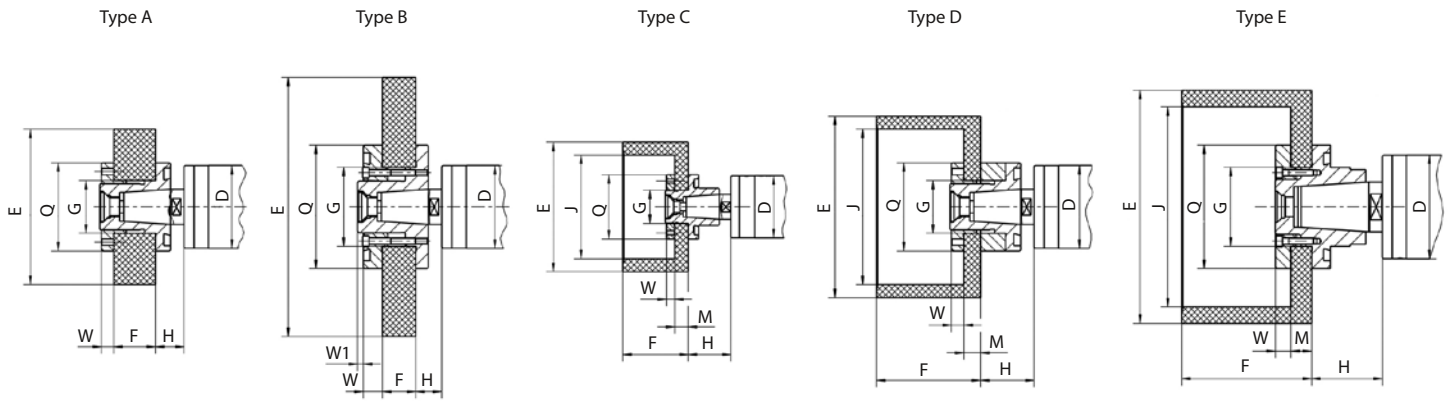
Collet tapers and collets for Spindles FAV / M32-FAV / M34-FAV

D	U	V	L	Collet mount Art. No. ⁽¹⁾	M	Q	Collet Art. No.
36	16	18	58	33075.361x06	21	3	33075.362x3
						6	33075.362x6
40 / 45	20	18	67.5	33075.401x06	21	3	33075.362x3
						6	33075.362x6
50	22	26	73	33075.501x08	26	3	33075.502x3
						6	33075.502x6
						8	33075.502x8
60	32	30	89	33075.601x010	30	3	33075.602x3
						6	33075.602x6
						8	33075.602x8
						10	33075.602x10
80	44	43	117.5	33075.801x016	40	6	33075.802x6
						8	33075.802x8
						10	33075.802x10
						12	33075.802x12
						16	33075.802x16

All Dimensions are in mm

(1) Direction of rotation to R or L (please specify without fail when ordering)
Sample order: 33075.361x06R oder 33075.361x06L

Collet tapers can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



Grinding flanges for spindles FAV / M32-FAV / M34-FAV

D	Art. No. ⁽¹⁾	Type	Q	H	W	W1	Internal grinding			ID / grinding ⁽³⁾			Face grinding ⁽⁴⁾					
							Grinding wheel		Grinding range Ø	Grinding wheel			Grinding wheel					
E max.	F ⁽²⁾	G	E max.	F	G	E max.	F	G		E max.	F	G	J	M				
36	33100.36x20	A	36	14	6		63	10-16	20	45-75	100	16	20					
	33102.36x20	C	36	20	6									56	40	20	44	8
40	33100.40x25	A	42	17	7		80	10-20	25	50-95	125	20	25					
	33102.40x25	C	42	27	7									80	50	25	68	8
45	33100.40x25	A	42	17	7		100	10-20	25	55-120	125	20	25					
	33102.40x25	C	42	27	7									80	50	25	68	8
50	33100.50x32	A	52	18	8		125	13-25	32	60-150	150	25	32					
	33102.50x32	C	52	27	7									100	50	32	84	10
60	33100.60x32	A	62	22	10		150	20-32	32	70-180	150	32	32					
	33102.60x32	C	62	41	7									125	63	32	100	13
80	33100.80x51	A	85	28	12		200	20-40	50.8	95-250	200	40	50.8					
	33100.80x76	B	119	25	19	5					300	32	76.2					
	33102.80x51	D	85	52	12									175	100	50.8	150	16
100	33100.100x76	A	119	32	12		250	25-50	76.2	130-350	250	50	76.2					
	33100.100x127	B	186	30	26	7					400	40	127					
	33102.100x76	E	119	65	15									225	125	76.2	193	20
120	33100.120x76	A	119	32	12		300	32-63	76.2	140-450	300	63	76.2					
	33100.120x127	B	186	30	26	2					450	50	127					
	33100.120x152	B	212	30	26	2					450	50	152.4					
	33102.120x76	E	119	73	15									250	125	76.2	218	20

All Dimensions are in mm

⁽¹⁾ Direction of rotation to R or L (please specify without fail when ordering)

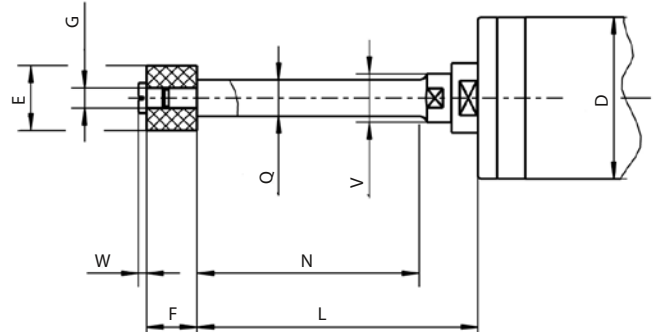
Sample order: 33100.36x20R oder 33100.36x20L

⁽²⁾ For extra-long spindles, only use the smallest grinding tool width F

⁽³⁾ During external grinding, max. grinding wheel Ø E may only be used on the shortest spindle.

⁽⁴⁾ During surface grinding, max. grinding wheel Ø E may only be used on the shortest spindle.

Grinding wheel flanges can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



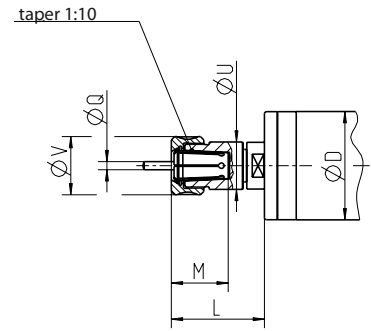
Internal grinding arbors for spindle FIV

D	Art. No. ⁽¹⁾	Grinding arbor					Grinding wheel			Grinding range	
		Q	N	L	V	W	E	F	G	to Ø	depth
45	33099.40.6x10 33099.40.6x22 33099.40.6x45	6	10 22 45	26 38 61	10	5	13	10	4	18	17 29 52
	33099.40.8x12 33099.40.8x25 33099.40.8x50	8	12 25 50	28 41 66	10	3	16	13	4	25	21 34 59
	33099.40.10x12 33099.40.10x28 33099.40.10x56	10	12 28 56	31 47 75	14	3	20	16	6	30	23 39 67
60	33099.60.10x20 33099.60.10x40 33099.60.10x63	10	20 40 63	43 63 86	16	3	20	16	6	30	31 51 74
	33099.60.12x20 33099.60.12x40 33099.60.12x70	12	20 40 70	47 67 97	24	3	25	20	6	35	34 54 84
	33099.60.16x25 33099.60.16x50 33099.60.16x80	16	25 50 80	52 77 107	24	4	32	25	10	45	42 67 97
80	33099.80.14x20 33099.80.14x56 33099.80.14x90	14	20 56 90	50 86 120	24	4	25	20	10	30	34 70 104
	33099.80.18x32 33099.80.18x70 33099.80.18x110	18	32 70 110	61 99 139	24	4	32	25	10	45	49 87 127
	33099.80.24x25 33099.80.24x63 33099.80.24x125	24	25 63 125	56 94 156	35	3	40	32	16	55	47 85 147
100	33099.100.20x25 33099.100.20x70 33099.100.20x125	20	25 70 125	59 104 159	34	3	40	32	13	55	47 92 147
	33099.100.25x32 33099.100.25x80 33099.100.25x140	25	32 80 140	66 114 174	34	3	50	40	16	65	59 107 167
	33099.100.34x36 33099.100.34x70 33099.100.34x160	34	36 70 160	72 106 196	50	3	63	40	20	80	63 97 187

All Dimensions are in mm

⁽¹⁾ Direction of rotation to R or L (please specify without fail when ordering)
Sample order: 33099.40.6x10R oder 33099.40.6x10L

Grinding arbors can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



Collet tapers and collets for Spindles FIV

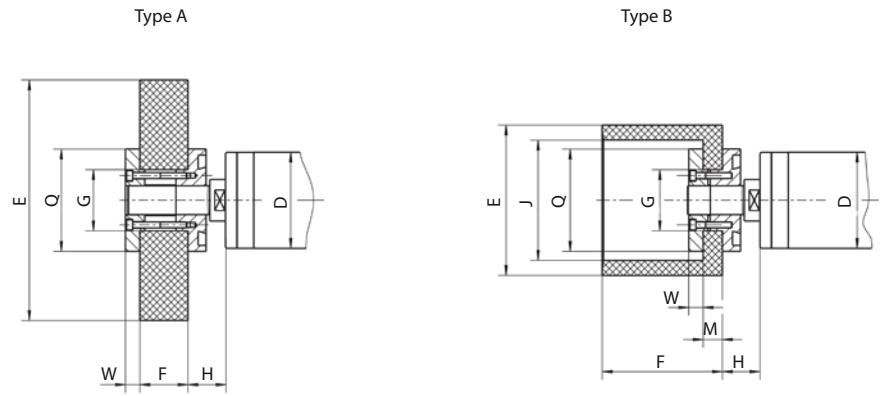
D	U	V	L	Collet mount Art. No. ⁽¹⁾	M	Q	Collet Art. No.
45	15	18	39.5	33076.401x06	21	3	33075.362x3
						6	33075.362x6
60	25	30	53.5	33076.601x010	30	3	33075.602x3
						6	33075.602x6
						8	33075.602x8
						10	33075.602x10
80	35	43	69.5	33076.801x016	40	6	33075.802x6
						8	33075.802x8
						10	33075.802x10
						12	33075.802x12
						16	33075.802x16

All Dimensions are in mm

⁽¹⁾ Direction of rotation to R or L (please specify without fail when ordering)

Sample order: 33076.401x06R oder 33076.401x06L

Grinding arbors can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



Grinding flanges for spindle FIV

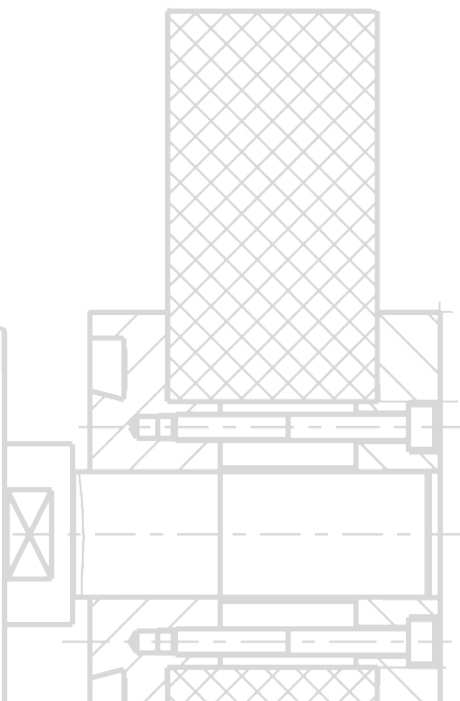
D	Art. No. ⁽¹⁾	Type	Q	H	W	Internal grinding				Face grinding				
						Grinding wheel E max.	F	G	Grinding range ∅	E max.	F	G	J	M
45	33101.40x25	A	42	19	7	100	10-20	25	55-120					
	33103.40x25	B	42	19	7					60	50	25	50	8
60	33101.60x32	A	62	25	10	150	20-32	32	70-180					
	33103.60x32	B	62	25	10					100	65	32	84	13
80	33101.80x51	A	85	31	12	200	20-40	50.8	95-250					
	33103.80x51	B	85	31	12					125	100	50.8	100	16
100	33101.100x76	A	119	34	12	250	25-50	76.2	130-350					
	33103.100x76	B	119	34	12					175	125	76.2	143	20

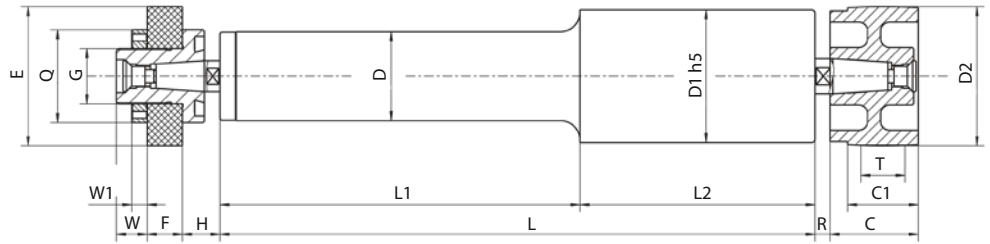
All Dimensions are in mm

⁽¹⁾ Direction of rotation to R or L (please specify without fail when ordering)

Sample order: 33101.40x25R oder 33101.40x25L

Grinding wheel flanges can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department





Grinding flanges and Pulleys for spindles with stepped spindle housing

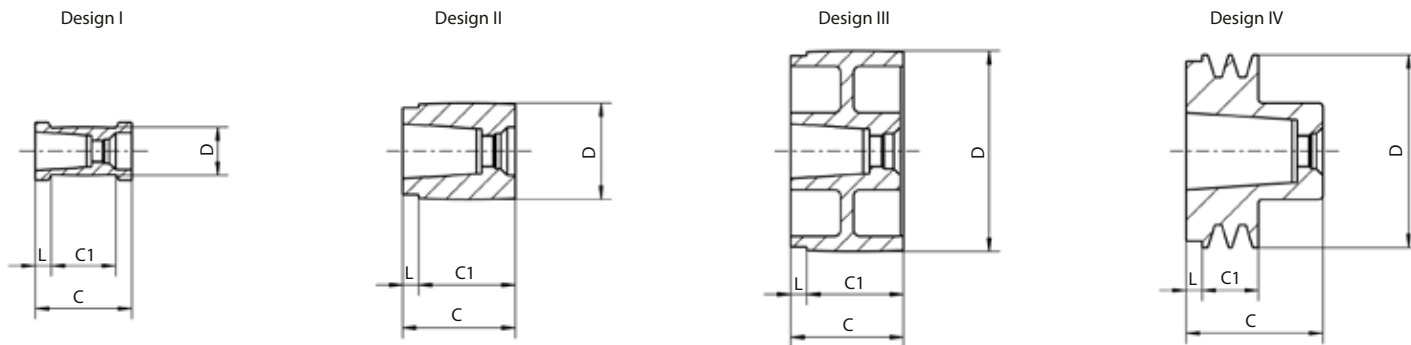
D.D1	Spindle length			Grinding range		Grinding wheel			Grinding flange					Pulley					Art. No.
	L	L1	L2	Ø	depth	E	F	G	Q	H	W	W1	Art. No. ⁽¹⁾	R	C	C1	T	D2	
25.60	335	175	160	28-34	170	32	8	16	25	12	9	4	33100.25x16	8	40	32	20	32	33070.501x32
	380	220			215														
	450	290			285														
	530	370			365														
25.80	530	290	240	28-34	280	32	8	16	25	12	9	4	33100.25x16	8	40	32	20	32	33070.501x32
28.60	450	290	160	32-38	290	36	10	16	28	13	8	4	33100.28x16	8	40	32	20	36	33070.501x36
28.80	530	290	240	32-38	285														
32.60	450	290	160	36-44	290	40	10	20	32	14	11	6	33100.32x20	8	40	32	20	40	33070.501x40
32.80	530	290	240	36-44	290														
36.60	450	290	160	42-56	295	50	13	20	36	14	12	6	33100.36x20	8	40	32	20	50	33070.501x50
36.80	530	290	240	42-56	295														
42.60	450	290	160	50-70	305	63	16	25	42	17	14	7	33100.40x25	8	40	32	20	63	33070.501x63
42.80	530	370	160	50-70	385														
50.60	630	470	160	60-90	490	80	20	32	52	18	15	8	33100.50x32	8	40	32	20	80	33070.501x80
50.80	530	290	240	60-90	305														
60.80	700	460	240	70-110	490	100	25	32	62	22	18	10	33100.60x32	11	60	50	30	100	33070.601x100
80.100	800	560	240	90-140	590	125	32	50.8	85	28	22	12	33100.80x51	13	70	60	40	125	33070.801x125
90.100	900	660	240	100-150	690	125	32	50.8	85	28	22	12	33100.80x51	13	70	60	40	125	33070.801x125
100.120	1000	700	300	115-180	750	150	40	76.2	119	32	30	16	33100.100x76	13	90	80	50	150	33070.1001x150
110.120	1200	900	300	130-220	950	175	40	76.2	119	32	32	12	33100.100x76	13	90	80	50	175	33070.1001x175

All Dimensions are in mm

⁽¹⁾ Direction of rotation to R or L (please specify without fail when ordering)

Sample order: 33100.25x16R oder 33100.25x16L

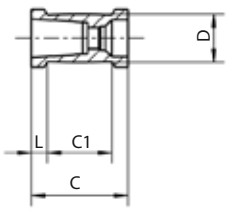
Grinding wheel flanges can reduce the maximum permitted rotational speed of the system. Please ask our Customer Service department



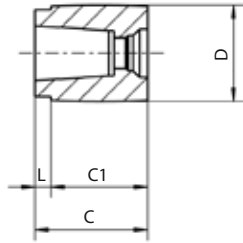
Pulleys for spindles FAV and FIV

Spindle size	Art. No.	Pulley				design	
		D	C	C1	L		
36	33070.361x16	16	32	20	6	I	
		22		25	7	II	
		38		25	7	III	
		50		25	7	III	
		65		25	7	III	
		70		25	7	III	
40/45	33070.401x18	18	40	25	7,5	I	
		22		25	7,5	I	
		25		32	8	II	
		28		32	8	II	
		48		32	8	III	
		60		32	8	III	
		65		32	8	III	
		80		32	8	III	
		100		32	8	III	
50	33070.501x25	25	40	32	8	I	
		32				II	
		36				II	
		40				II	
		50				II	
		63				III	
		70				III	
		80				III	
		85				III	
		125				III	
60	33070.601x30	30	60	40	10	I	
		40		50		II	
		52		50		II	
		80		50		III	
		100		50		III	
		125		50		III	
		150		50		III	
80	33070.801x42	42	70	60	10	I*	
		50				II	
		60				II	
		80				II	
		100				III	
		125				III	
		150				III	
		175				III	
		200				III	
		33070.802x78	78	65	16	10	IV**
		102					IV**
	100	33070.1001x60	60	90	80	10	I*
			80				II
		85				II	
		105				II	
		125				III	
		150				III	
		165				III	
		175				III	
		180				III	
		250				III	
		33070.1002x108	108	85	35	10	IV
		138					IV

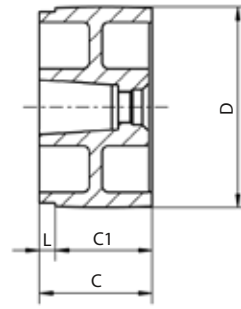
Design I



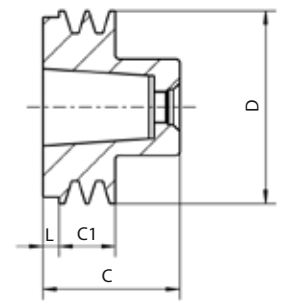
Design II



Design III



Design IV

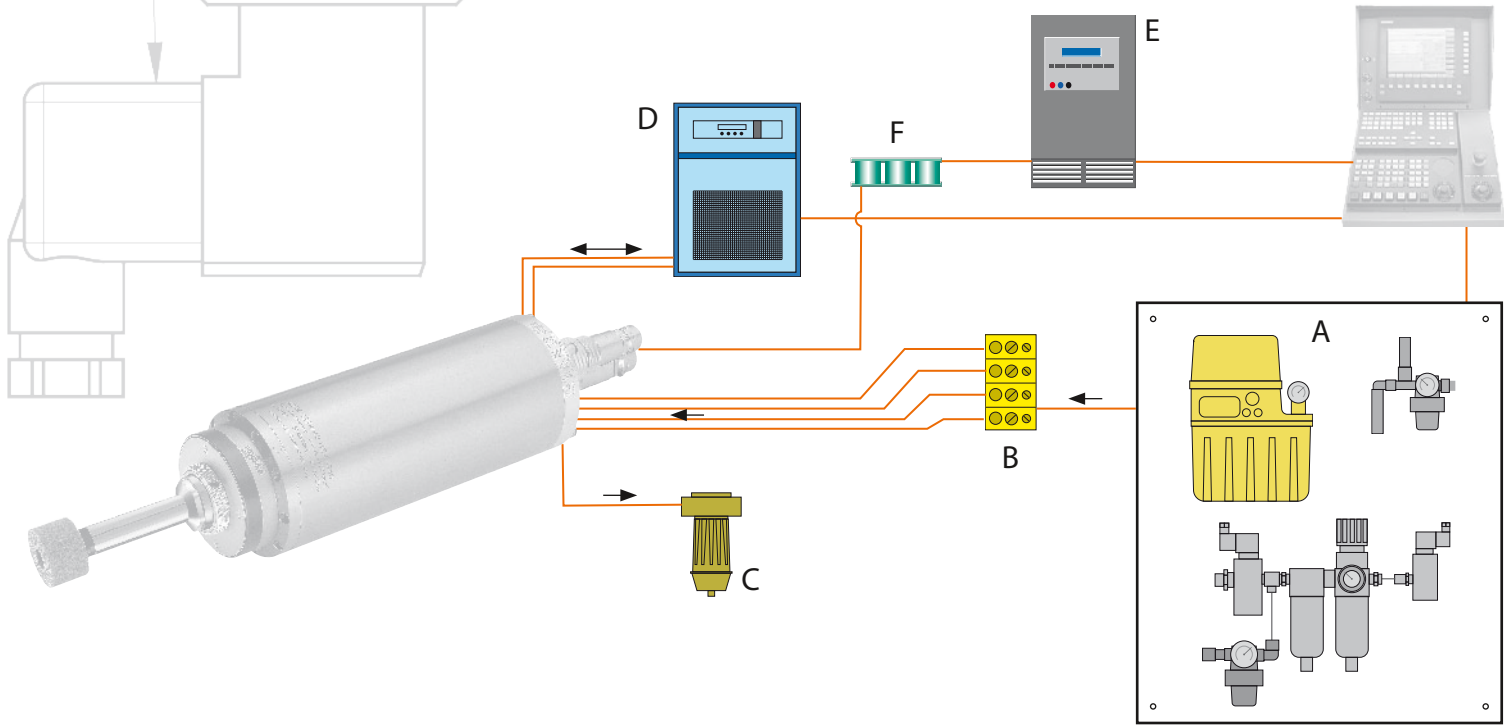


Spindle size	Art. No.	Pulley				design
		D	C	C1	L	
120	33070.1201x85	85	100	90	10	II
	95	95				II
	110	110				II
	142	142				III
	160	160				III
	190	190				III
	220	220				III
	300	300				III
	33070.1202x118	118	92	35	10	IV
	152	152				IV

All Dimensions are in mm

* with collar one side
**single grooved

Peripheral equipment for the optimal integration of high-frequency spindles



A **Oil-air central lubrication unit**

Pre-assembled central lubrication unit on aluminium baseplate with the following components:

- Lubricating pump with lubricant level monitoring, programmable lubrication intervals
- Main cut-off valve
- Fine filter for oil
- Air conditioning for central lubrication system and air seal
- Compatible with currently available competitive products

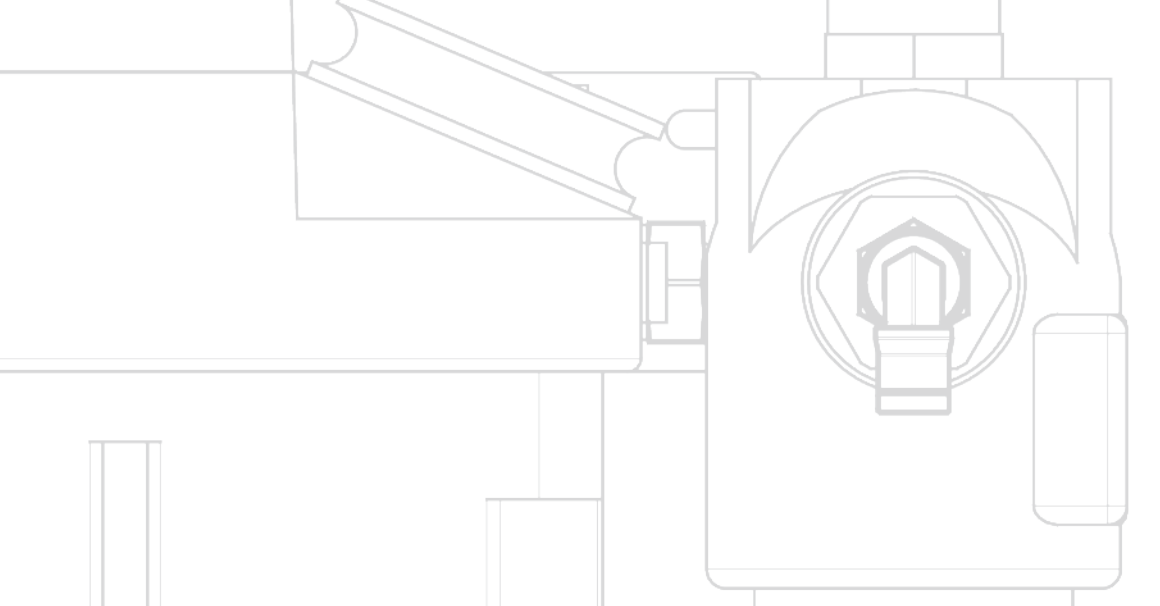
Spindle range	Main models*	Art. No.
MFM	OL OLA 103212010 24V/230V	107051
MFV	OL OLA 103210010 24V/230V	106752
MFN / MFZ	OL OLA 103210010 24V/230V	106752

* Other specifications available on request

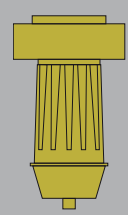
B **Oil-air metering unit**

- 100% tested and certified
- Compatible with currently available competitive products

Spindle range	Type	Specification	Art. No.
MFM	SFJ 4G	4 capillaries at 0.01 cm ³	104235
MFV	SFJ 2G	2 capillaries at 0.01 cm ³	105912
MFN / MFZ	SFJ 2G	2 capillaries at 0.01 cm ³	105912



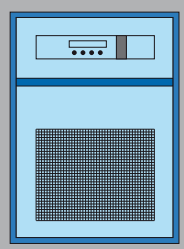
C Exhaust air filter



- 1-litre container to catch residual oil
- Suppresses air noise from lubrication system

Spindle range	Description	Art. No.
MFM	CS 13	881 – 110 – 0000

D Refrigerator unit

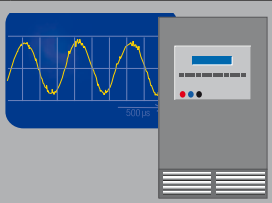


FISCHER PRECISE motor spindles are equipped with a high-performance motor. Any heat building up in the stator and bearing is dissipated by means of a cooling water circuit. The following rule of thumb applies as a basis for the calculation of the required cooling efficiency of the cooling unit for intermittent operation: 15% of the spindle motor performance S1

Type	Cooling efficiency [kW / kcal]	For spindle performance [kWS1]	Tank [L]	L x B x H [mm]	Art. No.
KAG 0.8	0.8 / 700	ca. 5	6	565 x 440 x 345	883 – 550 – 0080
KAG 1.6	1.6 / 1400	ca. 9 – 11	40	1000 x 440 x 500	883 – 550 – 0160
KAG 2.3	2.3 / 2000	ca. 14 – 16	87	730 x 675 x 1165	883 – 550 – 0230
KAG 3.7	3.7 / 3200	ca. 20 – 25	87	730 x 675 x 1165	883 – 550 – 0370
KAG 6.0	6.0 / 5200	ca. 30 – 40	87	730 x 675 x 1165	883 – 550 – 0600

other refrigerator unit on request

E Frequency converter



The correct frequency converter design is essential for quiet operation, the performance pattern and heat build-up in your spindle unit. For years, FISCHER PRECISE has been working closely together with the leading frequency converter manufacturers and maintains a regular exchange of experiences and know-how with them. In this way, we are able to provide you with the ideal prerequisites when it comes to specifying a converter and are only too happy to assist you when choosing a suitable supplier.

Filter choke for high-frequency spindle imperative!

F Filter choke



When using PWM (pulse width modulator) frequency converters in the lower price range, it is essential to incorporate a motor choke into the circuit. The FISCHER PRECISE Test Centre will assist you in the design of a motor choke.

- The ideal frequency converter/choke combination has the following effects:
- less heat lost in the rotor and stator
 - higher power output
- Results measured and documented on the FISCHER PRECISE test bench.

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