

GUHRING

NEW: Module 6x6

- simple, quick and highly accurate setting of 6-fluted tools
- minimal tension thanks to 6 setting elements
- perfect balancing with 6 balancing screws



Modules for fine machining Guhring modules 6x6 and 4x4

- quick and simple setting for perfect concentricity
- cooling lubrication delivery without loss and turbulence
- optimal for MQL and conventional cooling lubrication

Spot-on tool setting

Guhring modules 6x6 and 4x4 are the perfect solution for a quick, simple and μ -accurate setting of tools in highly precise manufacturing areas such as fine machining.

The advantages for the user:

- up to 70% time saving in tool pre-setting
- cost reduction
- highly accurate, wobble-free tool setting
- an extremely solid and rigid connection
- cooling lubricant delivery without loss or flow disruption

Whilst Module 4x4 is the market compatible solution the Guhring Module 6x6 is providing further opportunities for modular technology to satisfy the highest demands. On Guhring's Module 6x6 the setting screws for radial and axial setting sit much closer to each other than on conventional modules. This allows the elimination of errors in close proximity to the measuring point – even with 6-fluted tools with pinpoint accuracy!

1 Length setting screw with axial force damping

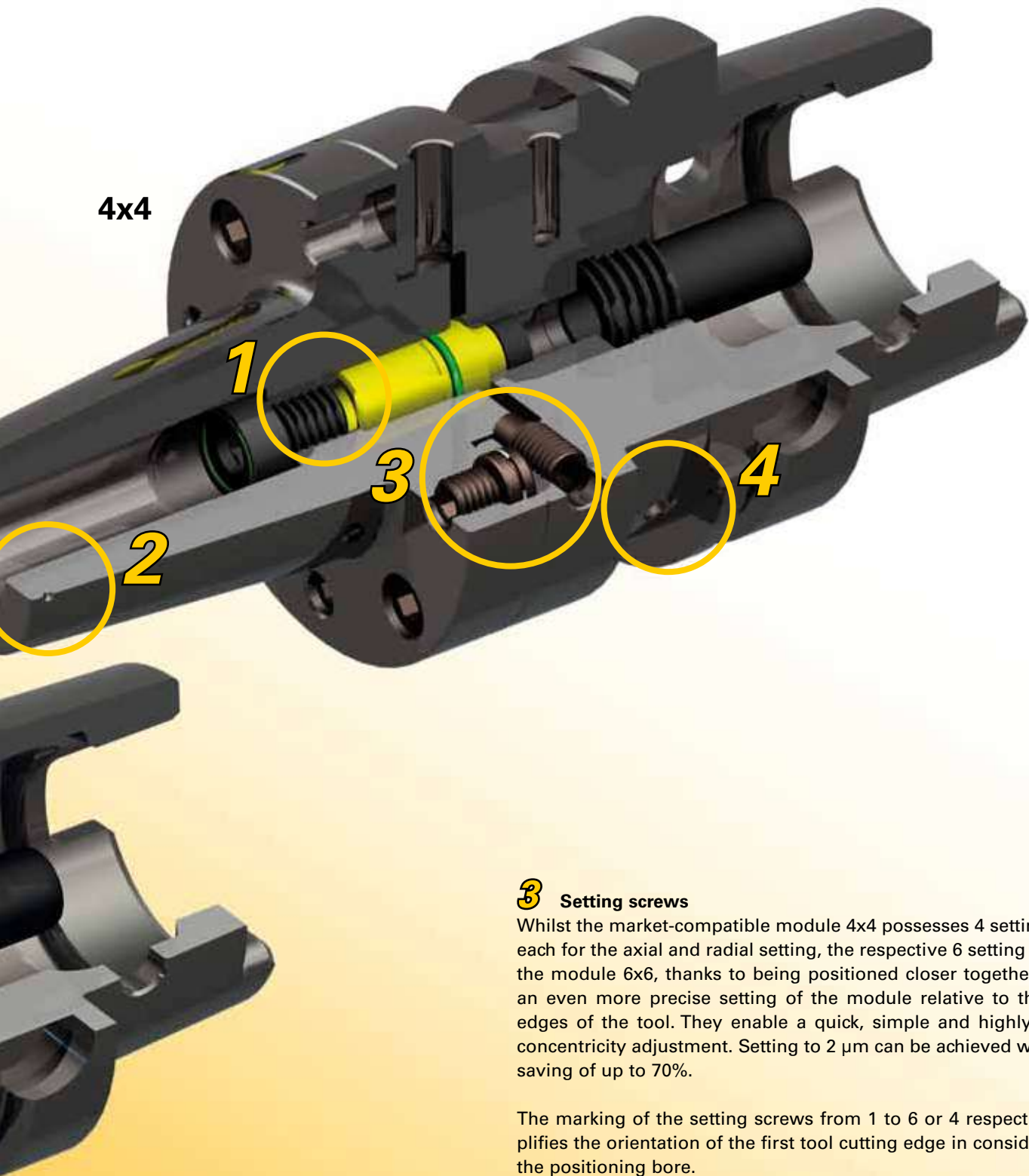
For conventional cooling lubrication the new length setting screw with axial force damping can be applied in both modules. It ensures accurate, tension-free shrink fitting by preventing the tool shank deflecting through the axial pressure on the setting screw. It also ensures a perfect length setting of the tool.



2 Positioning mark

Both modules possess a positioning bore for the first tool cutting edge. It is in alignment with the first setting screws for the radial and axial setting of the module. This enables

a quick and simple as well as optimal setting of the entire holder-module-tool system.



3 Setting screws

Whilst the market-compatible module 4x4 possesses 4 setting screws each for the axial and radial setting, the respective 6 setting screws of the module 6x6, thanks to being positioned closer together, provide an even more precise setting of the module relative to the cutting edges of the tool. They enable a quick, simple and highly accurate concentricity adjustment. Setting to 2 µm can be achieved with a time saving of up to 70%.

The marking of the setting screws from 1 to 6 or 4 respectively simplifies the orientation of the first tool cutting edge in consideration of the positioning bore.

4 Location bore for balancing screw

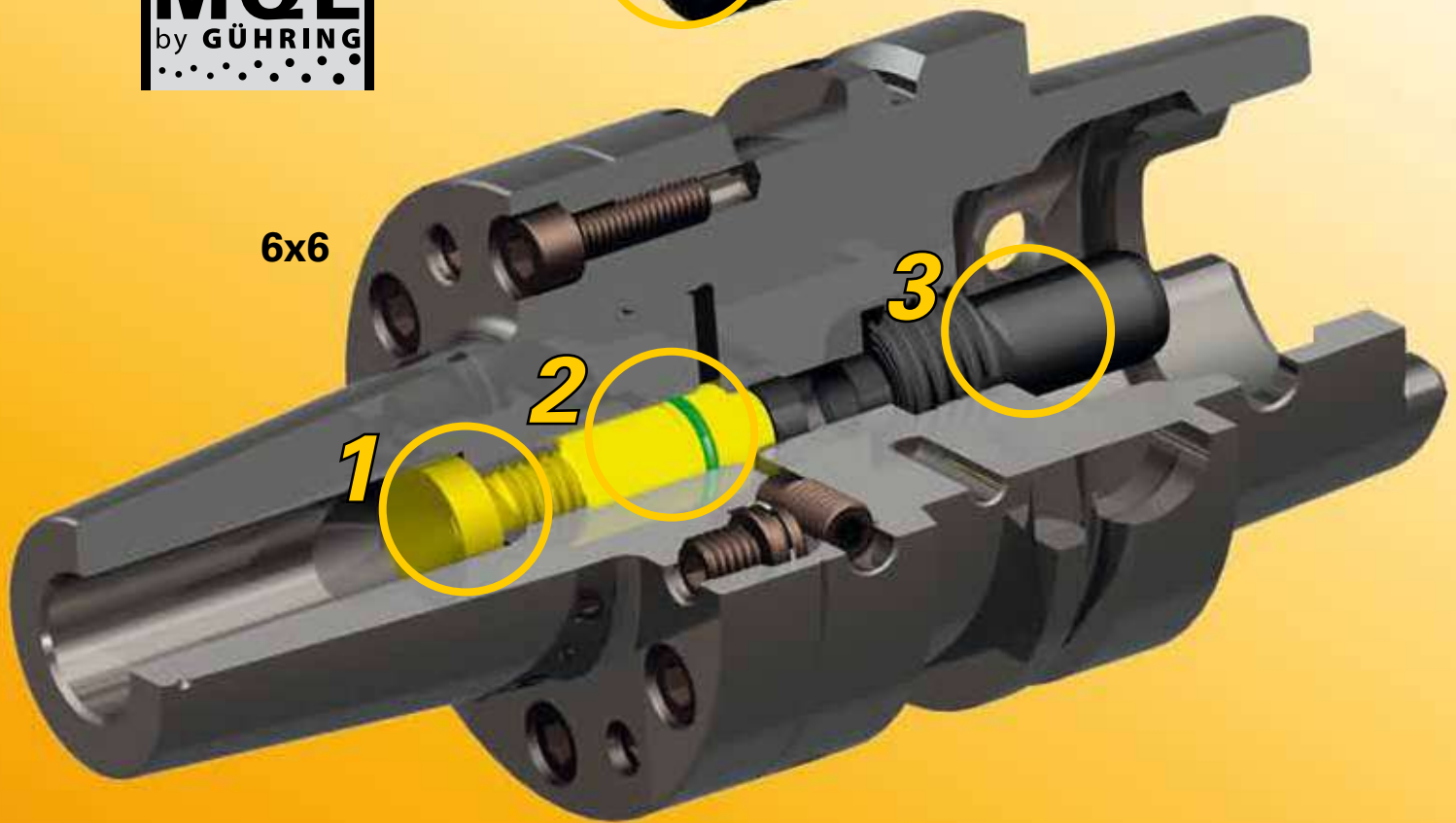
The module 6x6 as well as the module 4x4 possess 6 balancing bores. Thanks to being close to each other they enable a quick balancing in close proximity of the imbalance. The positioning of the balancing bores having a large effective diameter and thread depth provides a highly effective balancing capability.

Optimal cooling lubricant delivery

The modules 6x6 and 4x4 have both been designed for conventional cooling lubrication as well as minimal quantity lubrication. Whatever type of cooling lubrication the user decides on, the delivery system components required are 100% compatible. Subsequently, it is possible to convert any modules in stock without a problem.



3 MQL coolant delivery set for manual tool change



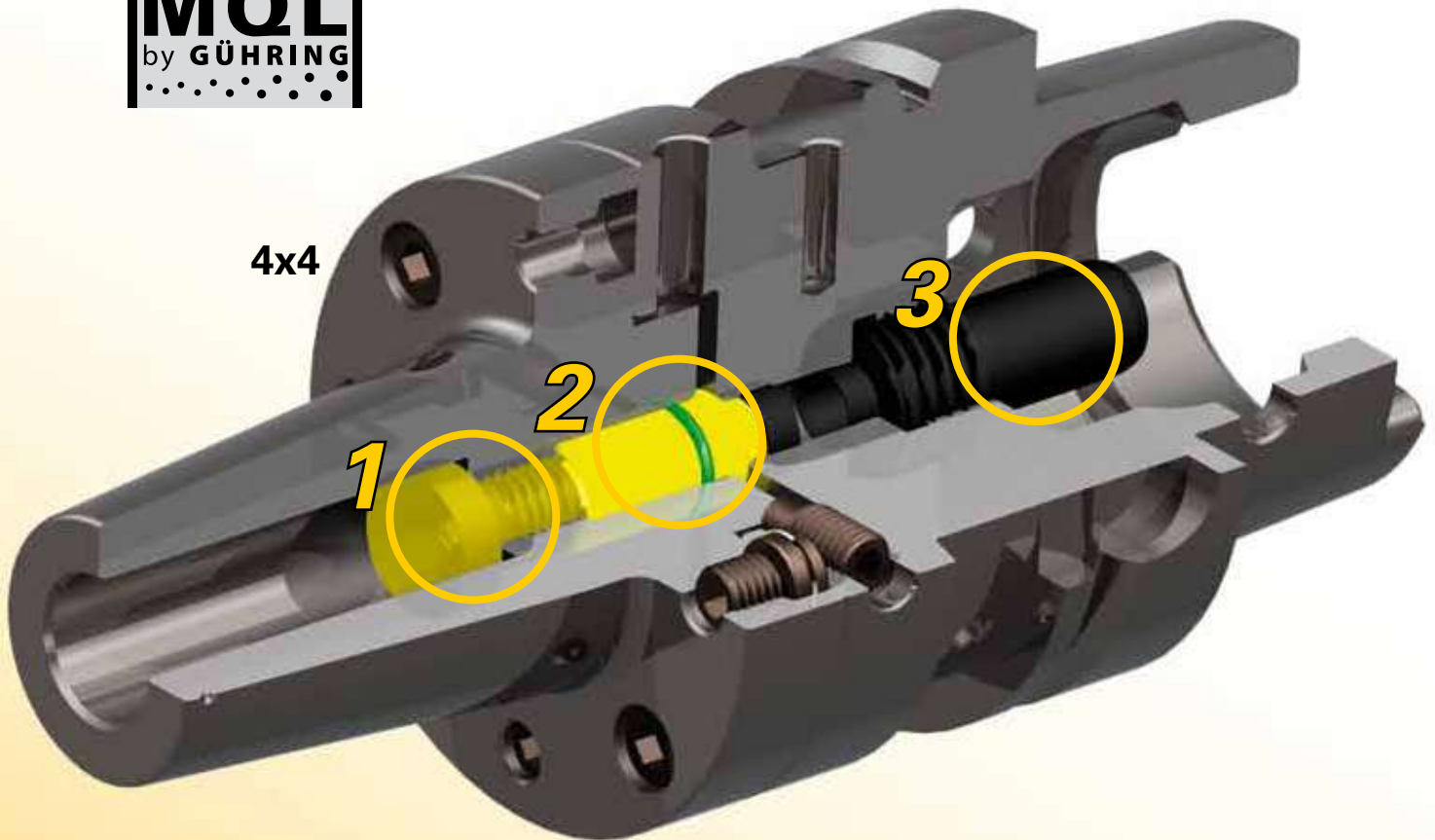
6x6

1 MQL length setting screw

The tool sits with its conical, MQL suitable shank end in the corresponding head shape of the MQL length setting screw. A sealing lip ensures a loss-free cooling lubricant delivery to the tool.



3 MQL coolant delivery set for manual tool change



4x4

2 Delivery unit

The delivery unit feeds the cooling lubricant through the tool holder without dead areas. For this, it is fitted with an O-ring and a special sealing lip. Particularly with MQL machining, a loss-free coolant delivery in this area is decisive for an optimal delivery to the cutting edges.

3 MQL coolant delivery set, Guhring no. 4939 or 4940

A loss-free cooling lubricant delivery between spindle and tool holder is provided by MQL coolant delivery sets 4939 for automatic and 4940 for manual tool change.

Coolant delivery set for conventional cooling lubrication, Guhring no. 4949

Alternatively, for conventional cooling lubrication the coolant delivery set 4949 is applied, that is 100% compatible with MQL coolant delivery sets.

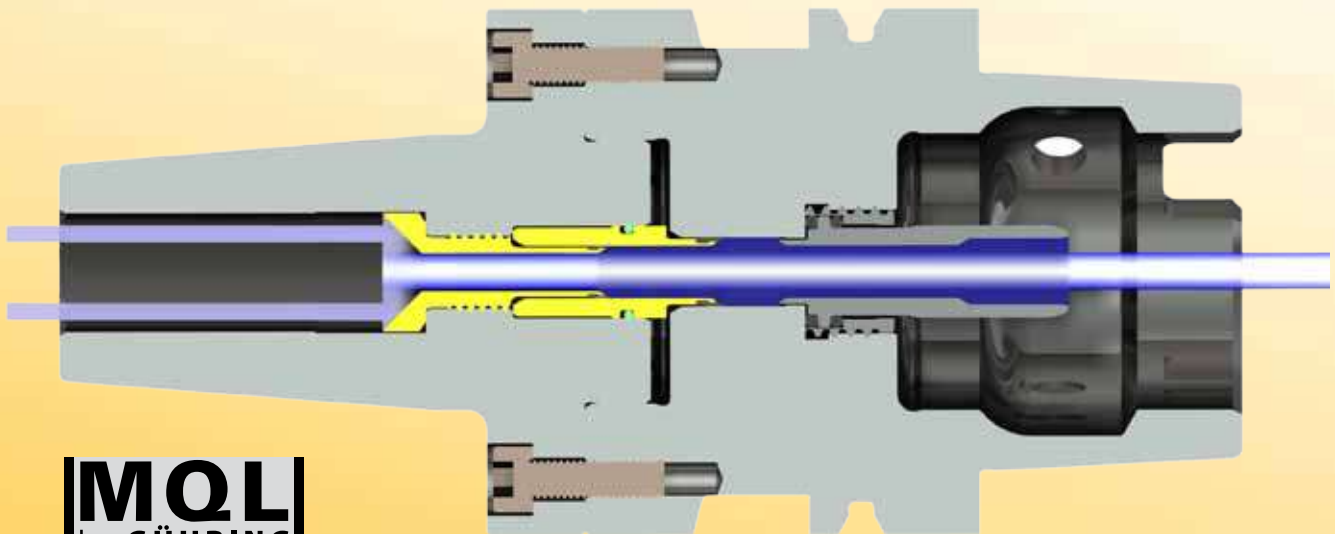
MQL without loss

Particularly with minimal quantity lubrication (MQL) the loss- and flow disruption-free delivery of minimal cooling lubrication quantities to the cutting edge of the tool is of

vital importance for an optimum and reliable machining process.

Gühring's delivery system: MQL length setting screw and intermediate sleeve

The cooling lubricant is supplied in a straight line without restriction or turbulence from the machine through the tool holder to the cutting edge. Gühring's delivery system can also be retro-fitted to other tool holders!



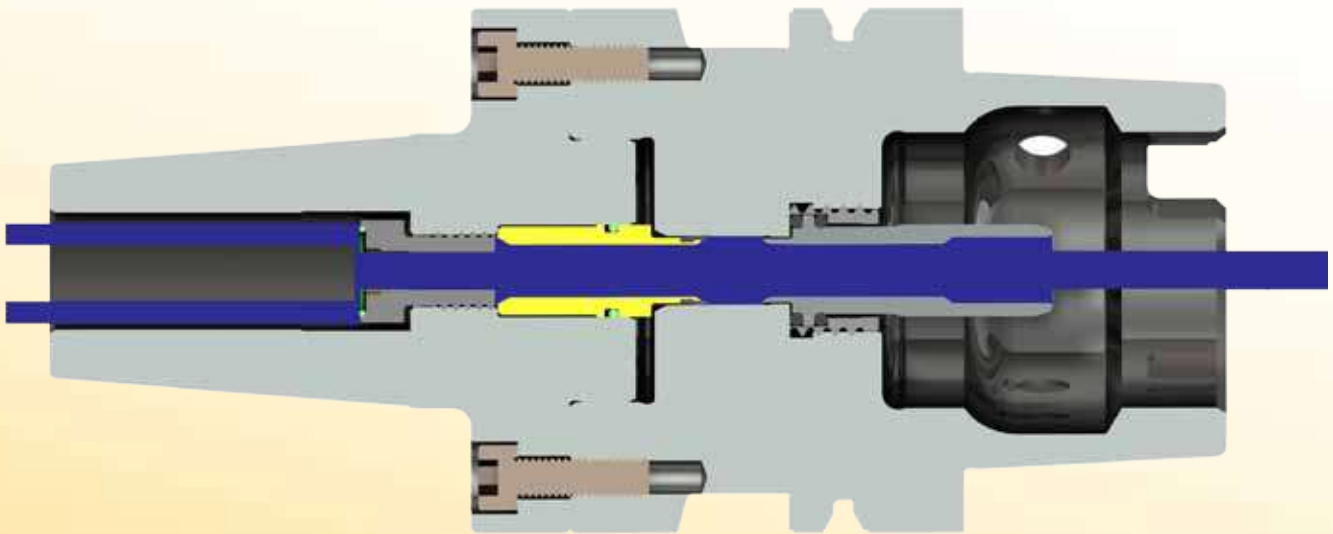
Loss-free conventional cooling lubricant delivery

The benefits of Guhring's Modules are not only the quick, simple and highly-accurate tool setting. But the optimal cooling lubricant delivery without restriction or turbulence

ensures a perfect machining result thanks to loss-free cooling and lubrication of the tool's cutting edges.

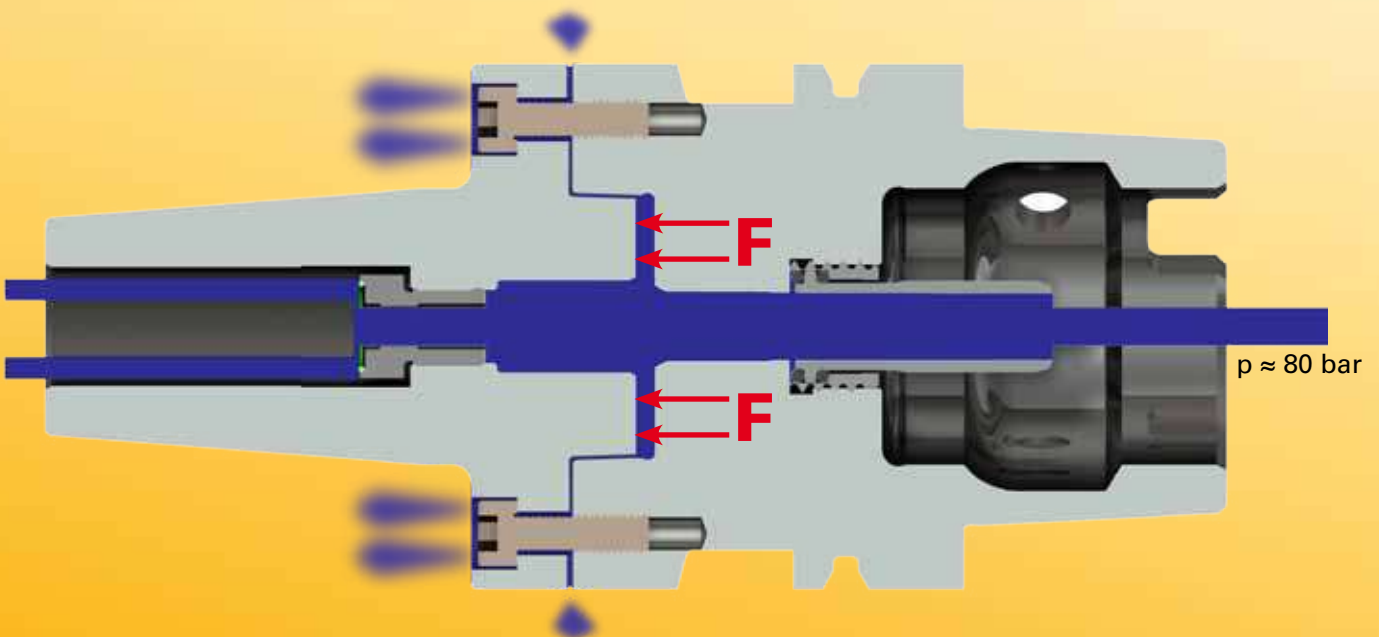
Guhring's delivery system for conventional cooling lubrication with intermediate sleeve

The cooling lubricant is supplied in a straight line without restriction or turbulence from the machine through the tool holder to the cutting edge.



Market conventional configuration without delivery system

The cooling lubricant deflects in the tool holder and the coolant exits into and from hollow areas in the holder. In addition, the cooling lubricant exerts force on the piston surfaces due to the high pressure of ≈ 80 bar resulting in hydraulic tension and concentricity errors.



Module 6x6 - the advantages at a glance

- quick and targeted μ -accurate setting thanks to the close proximity of axial and radial setting screws to the error measuring point. Ideal for 6-fluted tools with a perfect fit to the cutting edge.
- quick and targeted balancing thanks to 6 deep balancing bores and threads providing a high balancing capacity.
- optimal setting results with multi-flute PCD/CBN fine machining tools or Guhring's HR 500 high performance reamer with 6 cutting edges.
- especially rigid connection thanks to 6 fastening screws.
- accurate wobble setting and optimal rigidity thanks to a high pre-clamping torque.
- minimal 'settlement behaviour' offering highest accuracy over a long application period.
- universal and modular designed system with hydraulic chucks, shrink fit chucks or HPC clamping chucks as well as HSK or SK interface.
- available in combination with monolithic special tools.

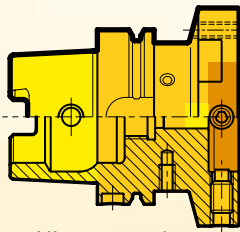


Perfect fit:

With module 6x6 the error measuring point is a max. 30° away from the next positioning bore. The same applies to the balancing bore.

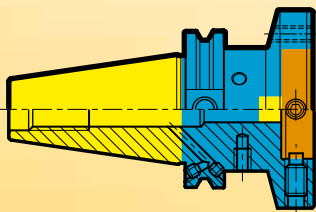
Module 6x6 system summary

HSK alignment adaptor



Alignment adaptor
Guhring no. 4723

SK alignment adaptor DIN 69871 AD/B

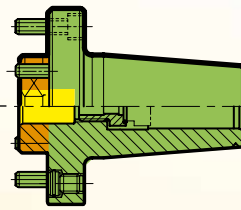


Alignment adaptor
Guhring no. 4725

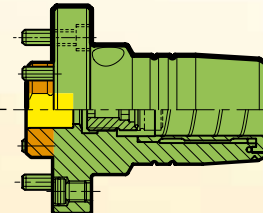
Machine spindle Direct installation



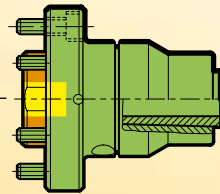
Module flange



Shrink fit chucks
Guhring no. 4717



Hydraulic chucks
Guhring no. 4722

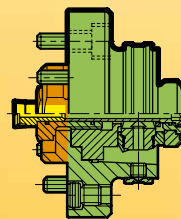


HPC clamping chucks
Guhring no. 4714

Intermediate tube
Guhring no. 4716



HSK adaptor (in front)
Guhring no. 4363



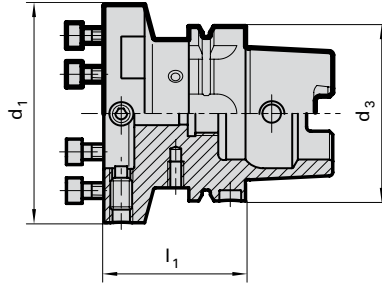
Module 6x6 HSK-A alignment adapter

Product information

- for the highly accurate alignment of all modular flanges 6x6
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G 6.3 / 15,000 rev./min
- 6 balancing threads M6

Scope of delivery

- incl. 6 screws for radial adjustment
- incl. 6 clamping screws
- order intermediate tube
Guhring no. 4716 separately
- order coolant delivery set
Guhring no. 4939 or 4940 separately
- further dimensions on request



Guhring no.

4723

Discount group

114



HSK-A d_3 mm	d_1 mm	l_1 mm	Code no.	Availability
63	60	60	60,063	•
63	70	60	70,063	•
63	80	60	80,063	•
63	100	65	100,063	•
63	117	65	117,063	•
80	70	60	70,080	•
80	80	60	80,080	•
80	100	65	100,080	•
80	117	65	117,080	•
80	140	75	140,080	•
100	70	55	70,100	•
100	80	55	80,100	•
100	100	65	100,100	•
100	117	65	117,100	•
100	140	75	140,100	•

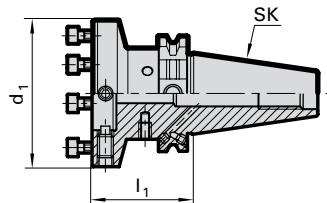
Module 6x6 SK alignment adapter

Product information

- receiver shank SK to DIN 69871 form AD/B
- for the highly accurate alignment of all modular flanges 6x6
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G 6.3 / 15,000 rev./min
- 6 balancing threads M6

Scope of delivery

- incl. 6 screws for radial adjustment
- incl. 6 clamping screws
- incl. threaded pins
- Order pull studs separately
- SK50/BT-holder on request



Guhring no.

4725

Discount group

114



SK	d_1 mm	l_1 mm	Code no.	Availability
40	60	50	60,040	•
40	70	50	70,040	•
40	80	55	80,040	•
40	100	60	100,040	•

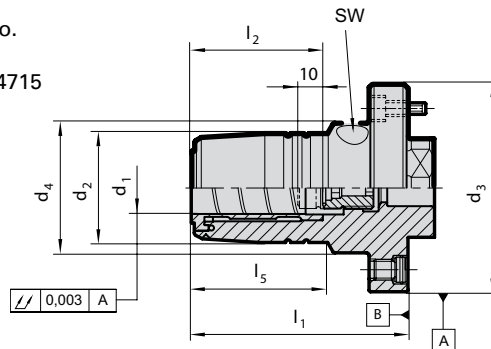
Module 6x6 hydraulic chuck flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G 6.3 / 15,000 rev./min
- for shank tolerance h6

Scope of delivery

- incl. length adjustment screw Guhring no. 4941 for conventional cooling
- incl. angular alignment set Guhring no. 4715
- incl. 6 clamping screws
- incl. hexagon chuck keys Guhring no. 4912
- order intermediate tube Guhring no. 4716 separately
- for other clamping \varnothing apply reduction bushes Guhring no. 4368 or 4369
- MQL version on request



Guhring no.

4722

Discount group

114



Module- \varnothing d ₃ mm	d ₁ mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₅ mm	incl. adjustment screw Guhring no. 4941	order intermediate tube separately Guhring no. 4716	SW	Code no.	Availability
70	12	32	40	75.0	45	45.0	12,100	14,020	4	12,070	•
80	12	32	50	77.5	45	44.0	12,100	14,050	5	12,080	•
80	20	42	50	82.5	50	51.5	20,100	14,040	5	20,080	•
100	32	64	64	103.0	60	84.0	32,100	14,020	6	32,100	•

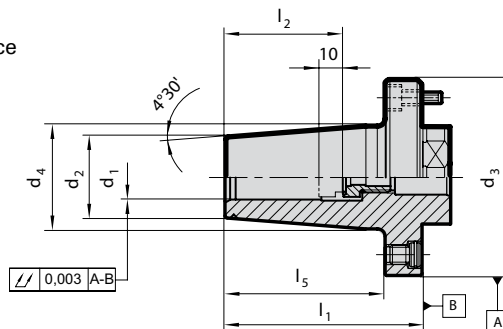
Module 6x6 shrink fit chuck flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G 6.3 / 15,000 rev./min
- for shank tolerance h6
- with axial dampening screw for optimal concentricity

Scope of delivery

- incl. length setting screw with axial force damping Guhring no. 4941
- incl. 6 angular alignment sets Guhring no. 4715
- incl. 6 clamping screws
- order intermediate tube Guhring no. 4716 separately
- further dimensions on request



Guhring no.

4717

Discount group

114



Module- \varnothing d ₃ mm	d ₁ mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₅ mm	incl. adjustment screw Guhring no. 4941	order intermediate tube separately Guhring no. 4716	Code no.	Availability
60	6	21	27	70	36	56	6,100	14,010	6,060	•
60	8	21	27	70	36	56	8,100	14,010	8,060	•
60	10	24	32	70	40	56	10,100	14,020	10,060	•
60	12	24	32	70	45	56	12,100	14,030	12,060	•
70	12	24	32	75	45	60	12,100	14,020	12,070	•
70	14	27	34	75	45	60	14,100	14,020	14,070	•
70	16	27	34	75	48	60	16,100	14,040	16,070	•
80	18	33	42	80	48	65	18,100	14,050	18,080	•
80	20	33	42	80	50	65	20,100	14,040	20,080	•
100	25	44	52	80	56	61	25,100	20,010	25,100	•
100	32	44	52	80	60	61	32,100	20,020	32,100	•

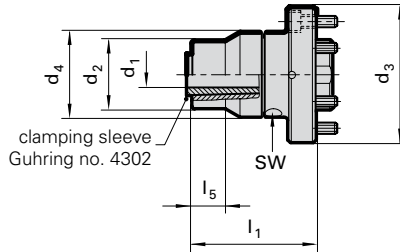
Module 6x6 shrink fit chuck flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- highest concentricity, clamping force and rigidity thanks to mech. tension gearing
- suitable for internal cooling up to 80 bar
- positive damping characteristics

Scope of delivery

- incl. hexagon chuck keys
Guhring no. 4912
- incl. 6 angular alignment sets
Guhring no. 4715
- incl. 6 clamping screws
- order intermediate tube
Guhring no. 4716 separately
- order clamping sleeve
Guhring no. 4302 separately



Guhring no.

4714

Discount group

114



Module-Ø d ₃ mm	for shank Ø d ₁ h6 mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₅ mm	order intermediate sleeve tube Guhring no. 4716	SW	Code no.	Availability
70	3 - 20	40	50	87	20	20,030	4	20,070	•
80	3 - 20	40	50	73	20	20,030	4	20,080	•
100	16 - 32	70	70	121	23	20,030	4	32,100	•

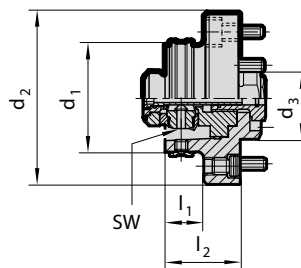
Module 6x6 HSK adaptor flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- suitable for MQL and conventional cooling
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration

Scope of delivery

- incl. MQL 4-point clamping set
Guhring no. 4930
- incl. brass lock ring Guhring no. 4953
- incl. 6 angular alignment sets
Guhring no. 4715
- incl. 6 clamping screws
- incl. intermediate tube



Guhring no.

4363

Discount group

114

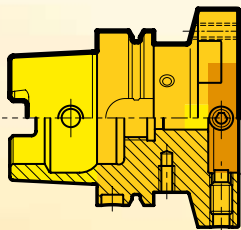


HSK-C d ₁ mm	Module-Ø d ₂ mm	d ₃ mm	l ₁ mm	l ₂ mm	SW	Code no.	Availability
32	60	30	26	36	2.5	24,060	•
40	70	35	30	40	3.0	30,070	•
50	80	40	35	45	4.0	38,080	•
63	100	50	43	55	5.0	48,100	•
80	117	60	50	62	6.0	60,117	•
100	140	80	70	82	8.0	75,140	•

Module 4x4 – advantages at a glance

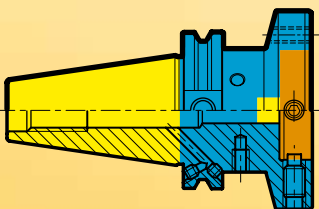
- market compatible module
- extensive range, of modular design
- optimal cooling lubricant throughput with conventional cooling as well as with MQL (optional)
- hydraulic chucks and shrink fit chucks with increased insertion depth to current Guhring standard for conical shank ends and long MQL shank

HSK alignment adaptor



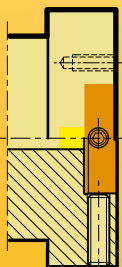
Alignment adaptor
Guhring no. 4297

SK alignment adaptor DIN 69871 AD/B

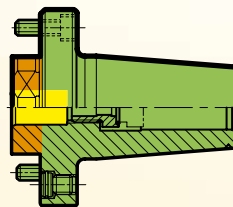


Alignment adaptor
Guhring no. 4724

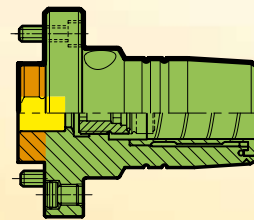
Machine spindle direct installation



Module flange



Shrink fit chucks
Guhring no. 4760

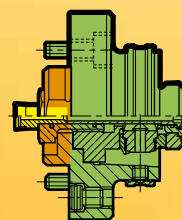


Hydraulic chucks
Guhring no. 4360

Intermediate tube
Guhring no. 4716



Adaptor flange
Guhring no. 4713



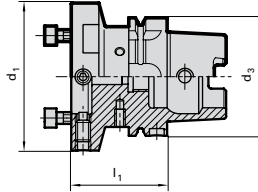
Module 4x4 HSK-A alignment adaptor

Product information

- for the highly accurate radial and axial alignment of all modular flanges 4x4
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G 6.3 / 15,000 rev./min
- 6 balancing threads M6

Scope of delivery

- incl. 4 screws for radial setting
- incl. 4 fastening screws
- order coolant delivery set Guhring no. 4949, MQL coolant delivery set Guhring no. 4939 or 4940 separately
- order intermediate tube Guhring no. 4716 separately
- further dimensions on request



Guhring no.

4297

Discount group

114



HSK-A d ₃ mm	d ₁ mm	l ₁ mm	Code no.	Availability
63	60	60	60,063	•
63	70	60	70,063	•
63	80	60	80,063	•
63	100	65	100,063	•
63	117	65	117,063	•
80	70	60	70,080	•
80	80	60	80,080	•
80	100	65	100,080	•
80	117	65	117,080	•
80	140	75	140,080	•
100	70	55	70,100	•
100	80	55	80,100	•
100	100	65	100,100	•
100	117	65	117,100	•
100	140	75	140,100	•

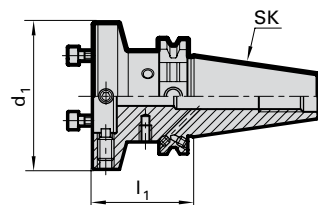
Module 4x4 SK alignment adaptor

Product information

- SK receiver shank to DIN 69871 form AD/B
- for the highly accurate radial and axial alignment of all modular flanges 4x4
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- suitable for MQL and conventional cooling
- balancing quality G 6.3 / 15,000 rev./min
- 6 balancing threads M6

Scope of delivery

- incl. 4 screws for radial setting
- incl. 4 fastening screws
- order intermediate tube Guhring no. 4716 separately
- order pull studs separately
- SK50/BT-holder on request



Guhring no.

4724

Discount group

114



SK	d ₁ mm	l ₁ mm	Code no.	Availability
40	60	50	60,040	•
40	70	50	70,040	•
40	80	55	80,040	•
40	100	60	100,040	•

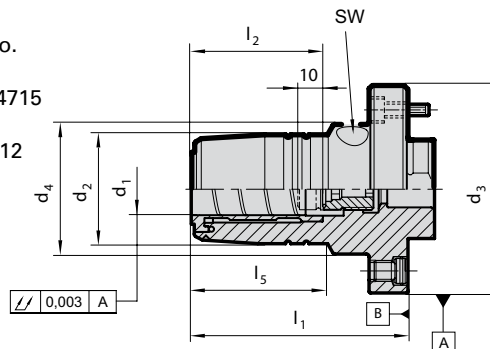
Module 4x4 hydraulic chuck flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G 6.3 / 15,000 rev./min
- for shank tolerance h6

Scope of delivery

- incl. length adjustment screw Guhring no. 4941 for conventional cooling
- incl. angular alignment set Guhring no. 4715
- incl. 4 fastening screws
- incl. hexagon chuck keys Guhring no. 4912
- order intermediate tube Guhring no. 4716 separately
- for other clamping \varnothing apply reduction bushes Guhring no. 4368 or 4369
- MQL version on request



Guhring no.

4360

Discount group

114



Module- \varnothing d ₃ mm	d ₁ mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₅ mm	incl. adjustm. screw no. 4941	order intermediate sleeve tube Guhring no. 4716	SW	Code no.	Availability
70	12	32	40	75.0	45	45.0	12,100	14,020	4	12,070	•
80	12	32	50	77.5	45	44.0	12,100	14,050	5	12,080	•
80	20	42	50	82.5	50	51.5	20,100	14,040	5	20,080	•
100	32	64	64	103.0	60	84.0	32,100	14,020	6	32,100	•

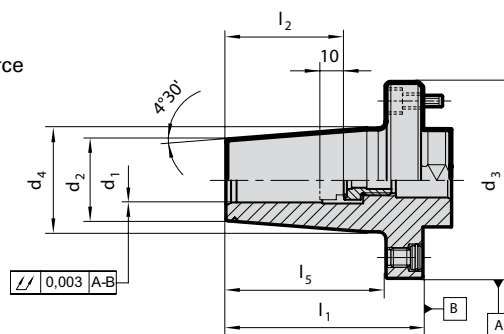
Module 4x4 shrink fit chuck flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- cooling lubricant without loss and flow-disruption thanks to the use of an intermediate tube
- balancing quality G 6.3 / 15,000 rev./min
- for shank tolerance h6
- with axial dampening screw for optimal concentricity

Scope of delivery

- incl. length setting screw with axial force damping Guhring no. 4941
- incl. angular alignment set Guhring no. 4715
- incl. 4 fastening screws
- order intermediate tube Guhring no. 4716 separately
- further dimensions on request



Guhring no.

4760

Discount group

114



Module- \varnothing d ₃ mm	d ₁ mm	d ₂ mm	d ₄ mm	l ₁ mm	l ₂ mm	l ₅ mm	incl. adjustm. screw no. 4941	order intermediate sleeve tube Guhring no. 4716	Code no.	Availability
60	6	21	27	70	36	56	6,100	14,010	6,060	•
60	8	21	27	70	36	56	8,100	14,010	8,060	•
60	10	24	32	70	40	56	10,100	14,020	10,060	•
60	12	24	32	70	45	56	12,100	14,030	12,060	•
70	12	24	32	75	45	60	12,100	14,020	12,070	•
70	14	27	34	75	45	60	14,100	14,020	14,070	•
70	16	27	34	75	48	60	16,100	14,040	16,070	•
80	18	33	42	80	48	65	18,100	14,050	18,080	•
80	20	33	42	80	50	65	20,100	14,040	20,080	•
100	25	44	52	80	56	61	25,100	20,010	25,100	•
100	32	44	52	80	60	61	32,100	20,020	32,100	•

Module 4x4 HSK adaptor flange

Product information

- for the highly accurate radial and axial alignment on alignment adaptors or machine spindles
- suitable for MQL and conventional cooling
- for the transferable torsional moment the interface between spindle and flange has to be taken into consideration

Scope of delivery

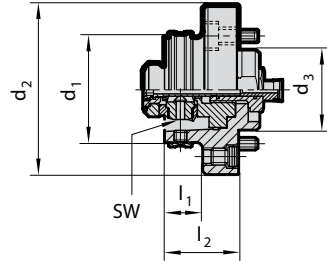
- incl. MQL 4-point clamping set Guhring no. 4930
- incl. brass lock ring Guhring no. 4953
- incl. 4 angular alignment sets Guhring no. 4715
- incl. 4 clamping screws
- incl. intermediate tube

Guhring no.

4713

Discount group

114



HSK-C d_1 mm	Module-Ø d_2 mm	d_3 mm	l_1 mm	l_2 mm	SW	Code no.	Availability
32	60	30	26	36	2.5	24,060	•
40	70	35	30	40	3.0	30,070	•
50	80	40	35	45	4.0	38,080	•
63	100	50	43	55	5.0	48,100	•
80	117	60	50	62	6.0	60,117	•
100	140	80	70	82	8.0	75,140	•



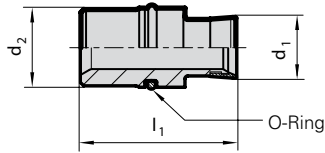
Intermediate sleeves for module flange and alignment adapter 6x6 and 4x4

Product information

- for sealing when machining with either coolant or MQL

Scope of delivery

- with O-ring and sealing lip



Guhring no.

4716

Discount group

114



d_1 mm	d_2 mm	l_1 mm	O-ring	Code no.	Availability
10.7	14	47.5	10x1.5	14,010	•
10.7	14	32.0	10x1.5	14,020	•
10.7	14	37.5	10x1.5	14,030	•
10.7	14	27.4	10x1.5	14,040	•
10.7	14	32.4	10x1.5	14,050	•
10.7	20	28.0	17x1.5	20,010	•
10.7	20	25.5	17x1.5	20,020	•
10.7	20	16.5	17x1.5	20,030	•

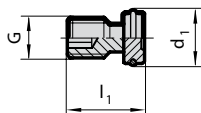
Angle alignment units for module flange and alignment adapter 6x6 and 4x4

Product information

- consisting of pressure disc and threaded pin for accurate angle alignment of module flanges

Scope of delivery

- pressure disc, threaded pin and snap ring



Guhring no.

4715

Discount group

114



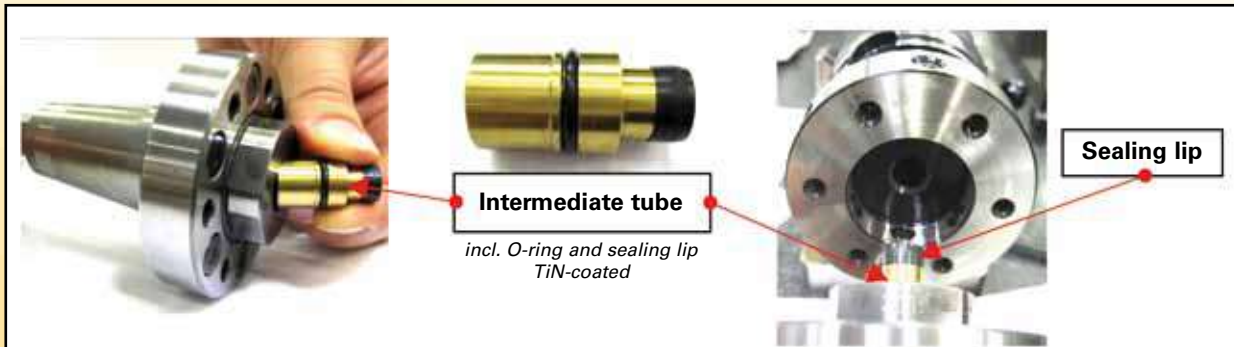
for module	G	d_1 mm	l_1 mm	Code no.	Availability
60 / 70 / 80	M8x1	11.5	13	8,010	•
100 / 117 / 140	M10x1	13.6	19	10,010	•

Setting and handling instructions GM 300 module 6x6 and 4x4

1. Assembly and radial alignment of module flange

1.1 Clean spigot diameter and plane faces of module flange and alignment adapter.

1.2 Insert module flange



Insert intermediate tube into the module flange bore up to the shoulder

- 1) Lightly lubricate the sealing lip
- 2) Carefully insert the sealing lip in centre of location bore in order to prevent damage. Then fit the module flange into the alignment adaptor.

1.3 Tighten the fastening screws to 50 % of the specified tightening torque (see "tightening torque" table)



1.4 Position dial gauge at the concentricity check point (ground module collar diameter). Record highest measuring point and "zero" the dial gauge.



concentricity
check point

1.5 Roughly align module flange (approx. 0.01 mm). Loosen the adjustment screws again following procedure.

1.6 Tighten fastening screws to specified torque. Then set the concentricity with the adjustment screws then loosen the adjustment screws again following procedure. Repeat the procedure until the concentricity error is $\leq 3 \mu\text{m}$. When the concentricity has been adjusted lightly tighten all the adjustment screws and check the concentricity again.

Tightening torque

Module diameter	Fastening screw	Tightening torque
60	DIN 912-M5x16-12.9	8.7 Nm
70	DIN 912-M6x20-12.9	15.0 Nm
80	DIN 912-M6x20-12.9	15.0 Nm
100	DIN 912-M8x25-12.9	36.0 Nm
117	DIN 912-M8x25-12.9	36.0 Nm
140	DIN 912-M10x30-12.9	72.0 Nm

Angular alignment of module flange



2.1 For the angular alignment the dial gauge is positioned at the front concentricity check point, at the cutting edge guiding pads or at a suitable position. Use the alignment screws to perform the angular alignment. Following the above procedure do not loosen the alignment screws.

2.2 When the angle alignment is adjusted to $\leq 3 \mu\text{m}$, check the radial alignment at the concentricity check point on the module collar again and correct if necessary. If the radial alignment has to be corrected, the angle alignment will have to be checked again.

Drilling



Tapping/thread milling/fluteless tapping



Reaming



Countersinking/de-burring



Milling



PKD/CBN



Modular tooling systems



Special tooling solutions



Tool restoration service



GUHRING

Guhring oHG

P.O. Box 100247 · D-72423 Albstadt
Herderstr. 50-54 · D-72458 Albstadt

Telephone: +49 74 31 17-0
Fax: +49 74 31 17-21 279
www.guehring.de

No liability can be accepted for printing errors or technical changes of any kind.
Our Conditions of Sale and Terms of Payment apply. Available on request.