TAS SCHÄFER

Product catalog

A strong partner for shaft/hub connections

made in GERMANY

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001:2018

A family owned company in the 3rd generation

TAS Schäfer GmbH is a family owned company with a long tradition. We are a company with high flexibility and leading on the market for friction locking hub to shaft connections.

In the meanwhile third family generation we have been developing innovative products for the drive technology since 1961. From our head-quarter in Wetter-Wengern we supply our high-quality products to our customers all over the world.

The sustainable support of our customers is always the most important thing for our daily work. With our agencies around the world we ensure a high standard of service. Reliability and a high level of technical consulting competence are our most important principles in the relationship with our customers.

Modern mechanical processing in perfection

Made in Germany

Our customer-oriented, flexible and efficient team implements customer requests quickly and professionally to find the best technical solution for our customers. We produce our products exclusively in Germany and guarantee the worldwide recognized quality „Made in Germany“.

Our engineering team is constantly working on innovative improvements to specific practice and customer requirements. Your wishes and requirements are our goal.
A state of the art in-house production facility with modern CNC technology and an own quality control department guarantee high-quality products.

Your advantages

The TAS Schäfer GmbH has more than five decades of experience in the field of machining of metals. Our machining processes mainly contain turning and drilling on modern CNC technology.

A combination of a high modern production with and the Know-how of our qualified employees makes us a reliable partner for our customers. Our strength is the high flexibility and the fast reaction time in the manufacturing process.

To make this possible a close communication takes place between our own engineering team and production.

An own raw material stock ensures short delivery times for our customers even for customized solutions.

Certified quality for present and future

We work for a clean future

As an ISO 9001 certified company we guarantee from the process of development to the finished product a maximum of quality and reliability. At our headquarter in Wetter-Wengern we are able to perform a detailed quality control of the manufactured products in our own quality center. With some of our products we support the effort of generating renewable energies. Wind turbines worldwide work with hydraulic or mechanical shrink discs made by TAS Schäfer GmbH. We work for a clean future.

Our technological developments for the shipping industry support the worldwide transport of goods across the oceans. Strength and endurance are not unknown for us. Our locking assemblies and flange couplings in the conveyor technology enable the mining of important raw materials, that are necessary for our daily life. According to the slogan „time is money“ we supply special solutions for test benches of wind turbine gearboxes worldwide. Exemplary for innovative product development are our hydraulic shrink discs. The to customer requirements oriented design enables the users an efficient and reliable connection and disconnection of shaft/gearbox connections. Our hydraulic products reduce costly assembly times to a minimum.

With slowing down moving masses in a safe and fast way our friction springs and industrial buffer are indispensable safety parts to protect people or conserve machines. Reliability and high quality standards are our top priorities.

That‘s what we‘re working for every day.

Quality control - From development to delivery

Already with the selection of our suppliers we define high requirements to ensure our high quality standards for the needed raw material of our products.

An important part of quality control is our own measuring centre at the location Wetter-Wengern. In our quality control process the manufactured parts are checked and reviewed by our 3D measuring machine.

Thereby our highly qualified employees guarantee the consistently high quality, safety and durability of our products.

On request, TAS Schäfer-products could be manufactured with certification of a classification society or comprehensive documentation.

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Typical applications

Wind power

Our hydraulic or mechanical shrink discs are used worldwide for the connection of the hollow shaft of the transmission with the rotor shaft.

Mining

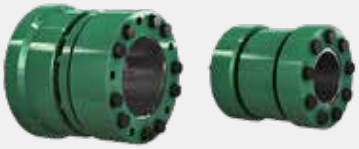
Different versions of our flange coupling are used in bucket wheel excavators. Furthermore, our locking assemblies, shrink discs and friction springs are used in conveyor drums, stirring shaft connections and crushers.

Materials handling

In the powertrain of conveyor belts, our flange couplings are also used.
Our friction springs, shrink discs and locking assemblies are used in the field of conveyor technology, especially in heavy-duty cranes, conveyor drums, elevators and storage technology.

Marine technology

Our hydraulic or mechanical shaft coupling drive rudder an shaft systems. Furthermore, our hydraulic and mechanical shrink discs are used to connect intermediate shafts and thrust bearing connections.



Drive technology

Our mechanical shrink discs are used for driving cable winches. In addition, hydraulic shrink discs, flange couplings and locking assemblies are used for shaft connections, motor connections and brake discs.

Hydropower

Our connections flanges are mainly installed in hydropower plants.
Our locking assemblies find their application in hydropower technology, e.g. in Francis turbines. Especially, the stainlees steel versions have a great importance in these applictaions.

Typical applications

Oil and gas industrie

Especially our stainlees steel products are designed for extreme conditions. Shaft couplings of TAS Schäfer GmbH are used to connect gearboxes and motors. For sealing systems on pumps, our shrinks are also used.

Wood processing

Our shrink discs from TAS Schäfer GmbH are installed in wood processing machines. A typical applictaion is the wood transport within the maschine. Depending on customer requirements, shaft couplins, locking assemblies and flange couplings are also used in this branch.

Food industrie

Stainless steel products are standard in the Food industrie. For this reason, our stainlees steel shrink discs or locking assemblies are essential for the high hygienic standatds of this industrie. They provide a reliable foundation for all applictaions in the area. Typical applications are stirring systems, ice machines and filling machines.

Paper industrie

Preferably, our hydraulic shrink discs are used in this insutrie, this allows faster replacement of rolls.

Furthermore, mechanical shrink discs and locking assemblies are installed in rollers and winding machines.

Packaging machines

Our locking assemblies are woldwide installed in different packaging machines.

For example, they are used to mounting pullys and also for the transport of goods in the machines. Furthermore, shrink discs and shaft couplings are also used in this industrie.

Gearbox test benches

Our hydraulic shrink discs, especially for gearbox test benches, are designed and manufactured to customer specifications. Through our years of know-how, we are world market leaders in this industrie and equip test benches worldwide with our products.

TAS SCHÄFER

Hydraulic Actuated Products

Description of function SHS

Shrink discs of the type SHS

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. It is not in the force flow.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the hydraulik system. By using conical surfaces the inner diameter reduces and the radial pressure is built up. After clamping the SHS will be locked mechanically and the hydraulic pressure will be removed. Due to this simple approach the SHS is suitable for repetitive clamping operations as they occur on a test bench, for example.

To achieve proper operation and to a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be free of grease, dry and clean. The functional surfaces of the shrink disc are equipped at the factory with lubricant. The contact surfaces between the hub and shrink disc must also be provided with grease before installation.

Product data SHS

Data sheets and CAD data:

- Our hydraulically actuated shrink discs are selected according to customer specifications or been redesigned.
- For this purpose please send us an e-mail to *info@tas-schaefer.de*

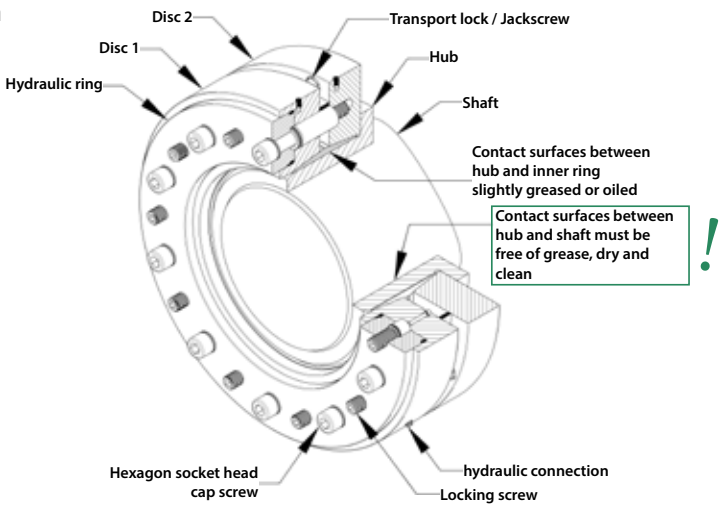
You can find the questionnaire for this product on:

www.tas-schaefer.de

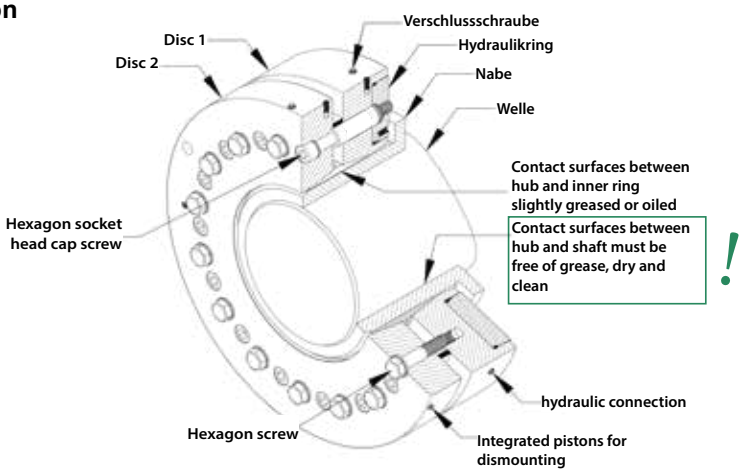
Advantages of the SHS:

- application-specific design/ customization
- relatively low pressure
- very rapid tightening / loosening, in comparison to the mechanical shrink disc
- mechanically removably, partially mechanically tensionable when hydraulic is not available
- simple design based on 3-parts shrink disc
- maintenance/repairs carried out by customer

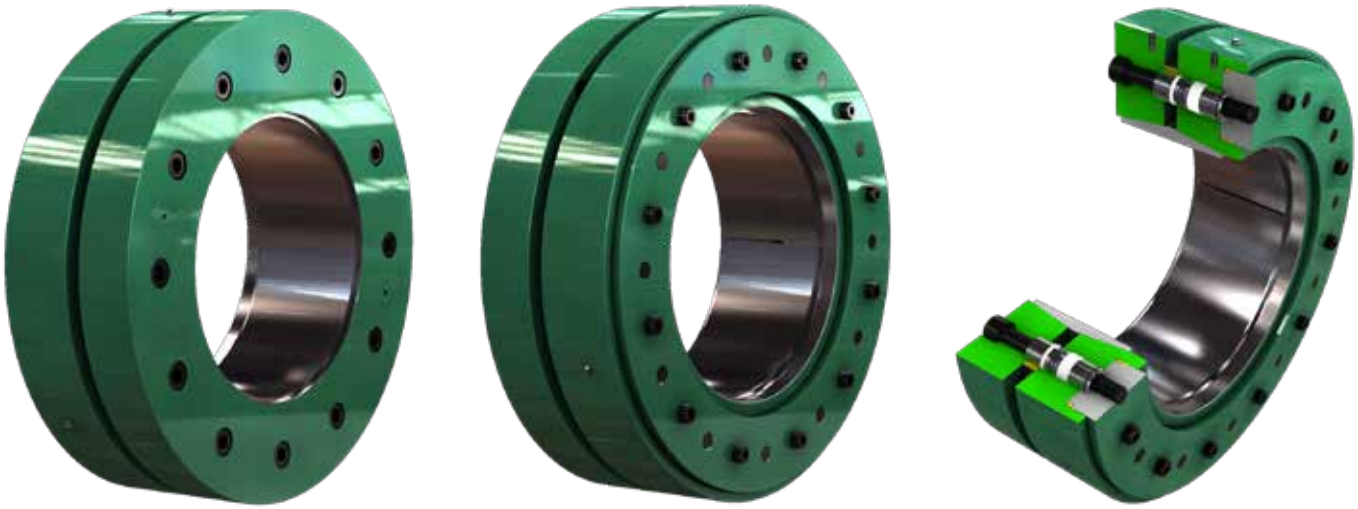
Hydraulics on the front



Hydraulics on the back



SHS Standard

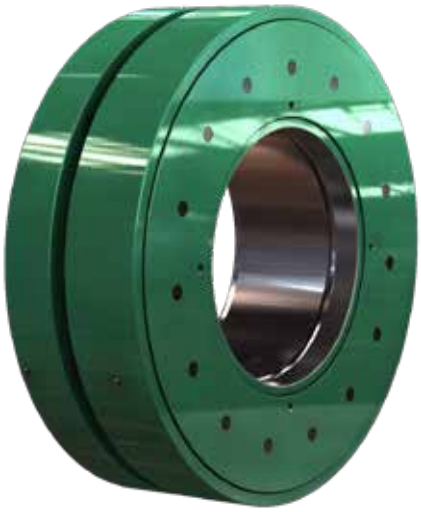


SHS-560

SHS-220 MD DT

Typical fields of application	Industrial gearboxes
	Hollow shaft gearboxes
	Hydraulic motors
Nominal sizes	140 - 1.000 mm
Nominal torques	20 - 10.000 kNm
Pressure range	up to 180 bar
Versions	Hydraulic on the front
	Bolting on both sides
Features	simple design
Options	improved corrosion protection

SHS Test Bench



SHS-530.2/2,5 P

SHS-1000/990 P

Typical fields of application	Gearbox test stands
Nominal sizes	140 - 1.000 mm
Nominal torques	20 - 14.000 kNm
Pressure range	up to 200 bar (up to 400 bar for dismounting)
Versions	Hydraulic on the front or on the back
	Bolting on both sides or on the front
Features	Optimized for permanent operation
	reduced wear
	higher safety
	simplified handling and maintenance
Options	Application specific customization
	improved corrosion protection

SHS Marine (with class approvals)

Typical fields of application	shafting
Nominal sizes	140 - 800 mm
Nominal torques	14 - 2.800 kNm
Pressure range	up to 200 bar
Versions	up to 400 bar (dismounting) Hydraulic on the front Hydraulic on the back Bolting on both sides
Features	Bolting on the front wide design reduced surface pressure high safety Application specific customization full class approvals
Options	hydraulic dismounting

SHS-230 LR

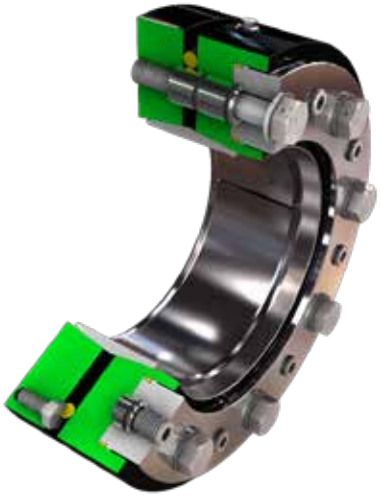
SHS Wind energy

Typical fields of application	Main rotor shaft
Nominal sizes	Generator shaft
Nominal torques	140 - 1.000 mm
Pressure range	20 - 12.000 kNm up to 200 bar
Versions	Hydraulic on the front Hydraulic on the back Bolting on both sides Bolting on the front
Features	special corrosion protection Application specific customization
Options	-

SHS-530/2,5

SHS Customized

SHS-300.2 P



SHS-240.1 MD DT

Typical fields of application	Crusher
	Mills
Nominal sizes	Shredder ... etc.
Nominal torques	100 - 1.000 mm
Pressure range	10 - 12.000 kNm
	up to 200 bar
	up to 400 bar (dismounting)
Versions	Hydraulic on the front or on the back
	Bolting on both sides or on the front
Features	Application specific customization
Options	By arrangement and engineering viability

Description of function FKH

Rigid flange couplings of the type FKH

The main function of a hydraulic flange coupling (hereinafter called FKH) is the safe connection of two shafts. For example, between a drive shaft and a transmission shaft. The FKH produces a rigid and backlash-free connection between the shafts. This connection is mainly used to transmit torque, but can also absorb bending moments. The FKH is located in the power flow.

It is installed by sliding the FKH onto the shaft and the subsequent tightening of the hydraulic system. By using conical surfaces the inner diameter reduces and the radial pressure is built up. After clamping the FKH will be locked mechanically and the hydraulic pressure will be removed. Due to this simple approach, the FKH is suitable for repetitive clamping operations.

To achieve proper operation and to a sufficiently high coefficient of friction, the contact surfaces between shaft and FKH must be free of grease, dry and clean. The functional surfaces of the FKH are equipped at the factory with lubricant.

Product data

Data sheets and CAD data:

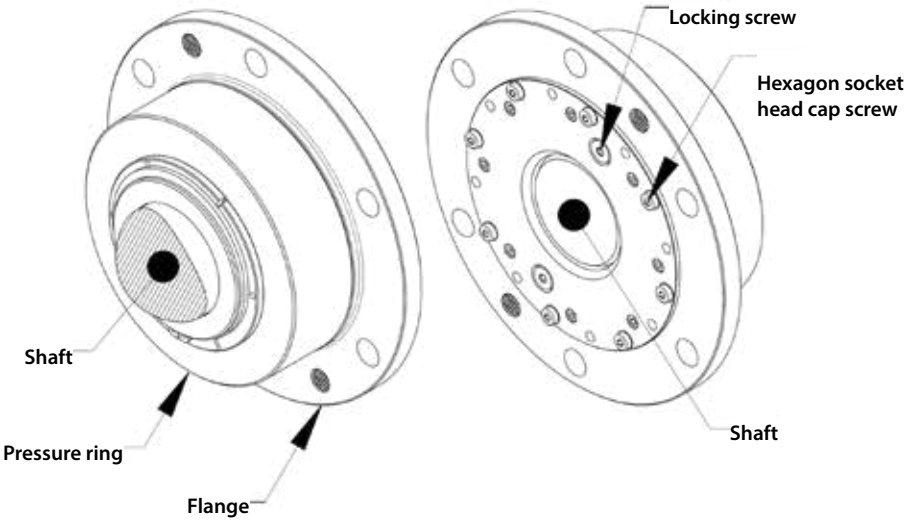
- Our hydraulically actuated shrink discs are selected according to customer specifications or been redesigned.
- For this purpose please send us an e-mail to *info@tas-schaefer.de*

You can find the questionnaire for this product on:

www.tas-schaefer.de

Advantages of the FKH

- high transmittable torque and bending moments (high friction)
- application-specific design/ customization
- easy mounting and adjustment because of clearance fit
- relatively low pressure (closed system)
- very rapid tightening/ loosening
- simple design (single cone)
- short installation length
- also usable for shafts with keyway (should be filled)
- combination of different shaft diameters



FKH Rigid flange coupling

Typical fields of application	Conveyor drives
Nominal sizes	Agitator shaft
Nominal torques	70 - 500 mm
Pressure range	6 - 2.500 kNm
	up to 400 bar
Versions	standard design
	heavy design
Features	short installation length
	high stability
	tensionable from the shaft side
	desired shaft stepping
	closed hydraulic system
	mechanical lock
Options	improved corrosion protection

FKH - 090P

TAS SCHÄFER

Shrink Discs
2-part

Torque-controlled | External clamping devices

Description of function

Two part shrink disc of the types TAS 31..

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. Therefore, the force flow does not pass through it.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the screws. By using conical surfaces the inner diameter reduces and the radial pressure is built up. The 31xx range of shrink discs are self-locking. The clamping forces are provided and controlled through the screws (force controlled). This allows the direct compensation of the clearance between the shaft and hub, without an overload that may occur on path controlled shrink discs, due to small or over sized clearance. Except for this are the shrink disks of the type 3173 as well as the types 3191 and 3193 to d 185mm. They are controlled by path (front faces are flush).

The supplied shrink discs are ready for installation.

To achieve proper operation with a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be dry, clean and free of grease. The functional surfaces of the shrink disc, the thread and head rests of the screws, are equipped at the factory with lubricant. Molykote G-Rapid Plus or comparable must be used as a lubricant. The contact surfaces between the hub and the bush must be provided with grease or oil before installation.

Product data

A detailed installation manual is available on our Homepage.

Data sheets
Contact us if a data sheet for an individual product is required.

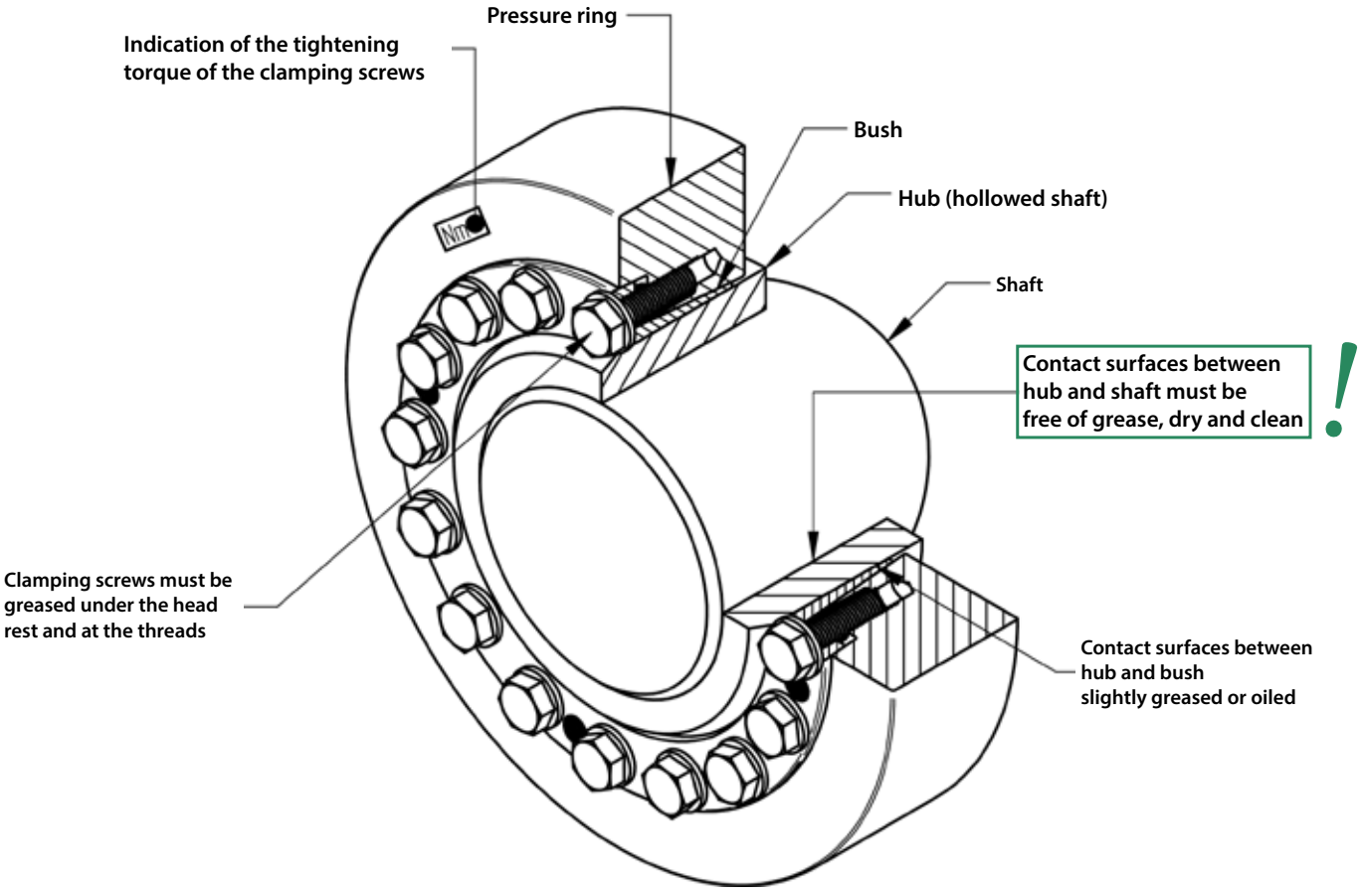
Desired product is not available, please contact us directly.

CAD data
We provide CAD data for our products in various formats. Please contact:

Rolf Gertner
rolf.gertner@tas-schaefer.de

or

Mike Kemper
mike.kemper@tas-schaefer.de



Basics - Design

Clamping length for shrink discs

The clamping length l of the shrink disk at the junction l_K (between shaft and hub), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stiffness of the shaft. A good approximation can be made from the following equation:

Clamping length of the contact area:

$$l_K = 0{,}316\,(d - d_w) + l$$

The cylindrical surfaces should be located symmetrically under the shrink disc! With a slightly different clamping length the transmissible torque M will not change, because a smaller contact surface results in a higher pressure - ergo a larger contact surface causes lower pressure.

Tightening torque of the clamping screws

The given tightening torque values in the tables for the screws are based on a friction coefficient μges = 0,1. In principle, the specified tightening torque M_A can be reduced to M_{Agew} to reduce stresses in the components. This may be necessary for soft materials and bored shafts. The reduction of M_A also reduced the pressure p_N and transmissible torque M. The ratio is approximately proportional and can be calculated according to:

$$M = \frac{M_{Agew}}{M_A}\ M \quad \text{also} \quad p_N = \frac{M_{Agew}}{M_A}\ p_N$$

The tightening torques can not be reduced arbitrary, therefore apply the following limits:

$$M_{Agew} \geq \begin{matrix} \text{Class } 8.8 : 0{,}85\ M_A \\ \text{Class } 10.9 : 0{,}70\ M_A \\ \text{Class } 12.9 : 0{,}60\ M_A \end{matrix} \leq M_A$$

A further reduction requires additional screw locks!

The values found in the product data based on surface quality and tolerances according to the table below. These values are given as recommendations.

Higher values for the surface roughness reduces the transmissible torque and promote unwanted settling. Larger clearance also reduces the transmissible torque and heightened tensions in the hub.

In the case of significantly different values, please contact us!

Tolerance for the outer diameter hub - f7!

Recommended tolerances and surface roughness

>	≤	FS_{max} mm	Clearance Hub/Shaft	Rz µm
9	18	0,022	H6/h6	10
18	30	0,026	H6/h6	10
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25
630	800	0,154	H7/g6	25
800	1000	0,172	H7/g6	25

Basics - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Transmissible torque

A shrink disc connection is capable of transmitting torque, bending moment and axial force. Alternatively, the transmissible torque M_{max} is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment M_{res}.

The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

At different load cases, these are individually checked against M_{max} ! Mres is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}3\ M_T$

as the limit for the the bending moment*

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,3 MT is due to the change of the surface pressure at the edges of the connection. (see also „Bending moment“)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max}

Bending moment only:
The maximum bending moment corresponds to 0,3 M_T .

Axial force only:
The maximum axial force is $M_{max} \frac{2}{d_W}$.

A different equation applies for very small shrink discs (3073):

$$M_B \leq 0{,}2\ M_T$$

Depending on the application, additional safety factors need to be considered for the individual loads!

Calculation of transmissible torques and forces

The catalogue data relates to specific shaft diameters which we recommend using. If the shaft diameter is between two sizes, the larger shrink disc should be selected. A deviation is possible within certain limits but the predetermined tolerances and surface roughness should be considered.

The shaft diameter and transmissible torque behave approximately proportional to each other. The transmissible torque increases with greater shaft diameter and vice versa. In contrast, the transmissible axial force changes only slightly. This is not due to the shaft diameter but because of the change in stiffness of the hub when the inner diameter changes.

Within certain limits, the changes can be linearly approximated. Information about the range of the respective shaft diameter can be found in the product data.
The determination of the deviating values is explained below. Please contact us if the shaft diameter must be outside the indicated range.
The formula below calculates the torque for specific shaft diameters:

$$M = M_{max\ (Catalog)} \left(\frac{d_{W\ (target)}}{d_{W\ (Catalog)}} \right)^2$$

The corresponding axial force which is transmitted instead of the torque, results as follows:

$$F_{ax} = M \frac{2}{d_{W\ (table)}}$$

Radial force

Radial forces cause a change in pressure at the contact surface. In the force direction, the pressure increases on the one side and is reduced accordingly on the other side. This depends on the amount of radial force and the rigidity of the parts.

The following equation can be used to approximate the pressure change:

$$\Delta p_W = 0{,}75 \frac{F_{AX}}{d_W\ l_K}$$

The modified pressures $p_{Wmin,\ max}$ results from the following equation:

$$p_{W_{min,\ max}} = p_W \pm \Delta p_W$$

The minimum pressure $p_{W_{min}}$ should be at least 50 N/mm² to avoid gap corrosion. In addition, the material must be designed for a maximum pressure $p_{W_{max}}$.

Basics - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Bending moment

Here the situation is similar to the radial forces. However the pressure is greatest at the ends of the connection in this case. Again, the amount and stiffness are important. This leads to the following approximation:

$$\Delta p_W = 4{,}5 \frac{M_B}{d_W l_K^2}$$

As before, the modified pressures results from:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The conditions for minimum and maximum pressure are the same as before. It should be noted that there could be a change in pressure due to radial force!

Shaft and hub calculation

The catalogue contains information on the generated surface pressure for each shrink disc. The hub will be deformed due to the applied radial force. In addition to the clearance between shaft and hub, shaft stiffness and surface finish should be concidered. For solid shafts the flexibility can be ignored, but with hollow shafts (see „Bore in the shaft (hollow shaft)“) there is greater deformation and thus greater stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. We will not make a presentation and analyse results at this point because we would only be able to cover a very limited range of static applications. Various calculation methods for different cases can be found in engineering literature or using specialiced software. However, for complex geometry often only a calculation by FEM gives reliable results.

The information on the minimum yield strength of shafts and hubs are suggested recommendations, based on typical values for such applications. They are provided as guidelines and are not a replacement for a proper calculation for a given application!

Notch effect

Generally there is a notch effect on the components, caused by the radial pressure of the shrink disc. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because here the inner ring of the shrink disc is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and it is between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

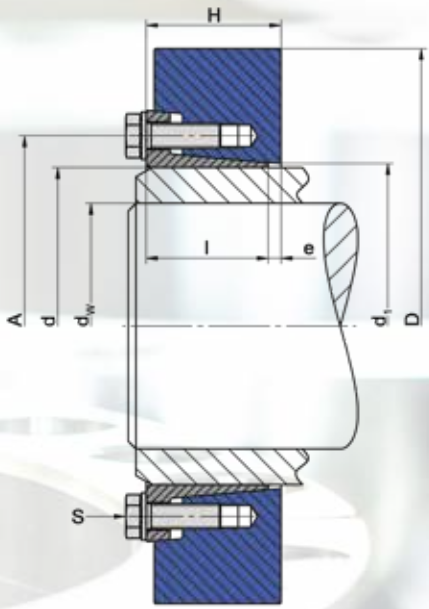
Some standards provide the possibility of a notch factor to be determined by a fit pairing for a shrink-connection. A similar method also can be used for a shrink disc connection. To this end an oversize can be calculated from the applied surface pressures. As a result, a matching fit pair can be determine and thus a resultant notch factor found.

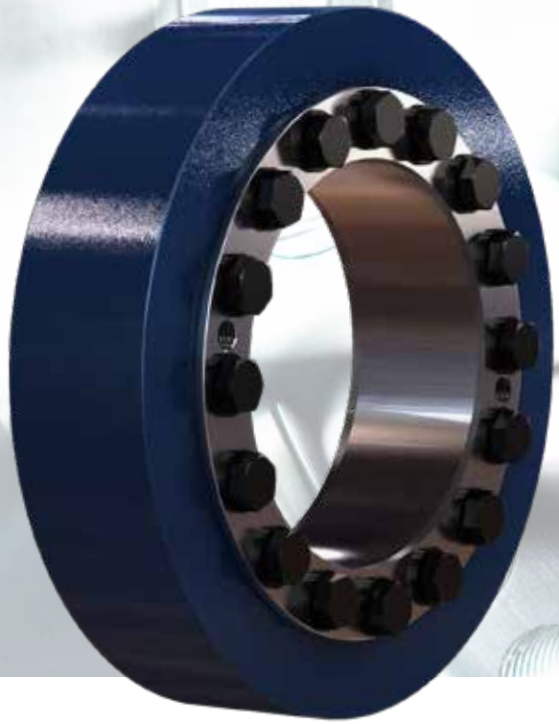
Bore in the shaft (hollow shaft)

A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure pW , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 dW .

TAS
SCHÄFER

3171 Standard-Range





Used symbols

d	[mm]	Nominal diameter of the shrink disc
dW	[mm]	Shaft diameter
Mmax	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d1	[mm]	Attachment size
MA	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
nmax	[min-1]	Permitted rotational frequency
pN	[N/mm2]	Average Pressure to the hub
I	[kgm2]	Moment of inertia

Design of the shrink disc

d < 120	Discs galvanized - without washers
d ≥ 120	Discs painted - with washers
d ≥ 195	Cone of bush not slit

Dimensions H & e in unlocked position

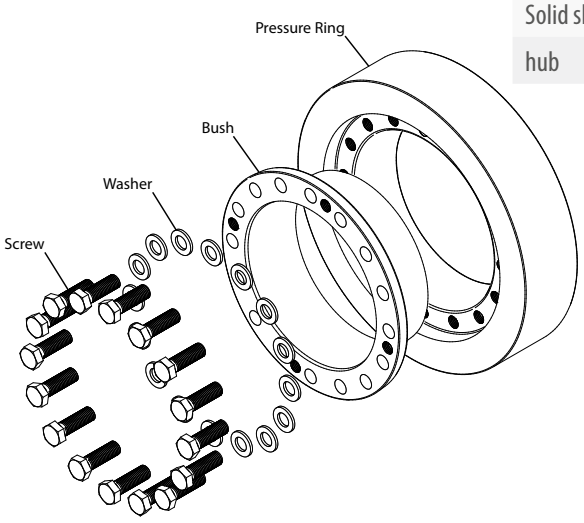
min. yield strength Rp0,2	N/mm²
Solid shaft	290
hub	350

Variation from the standard shaft diameter dW

> mm	≤ mm	minimal - mm	maximal + mm
10	30	-1	1
30	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	500	-20	10
500	700	-30	20

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



Ordering information: TAS 3171-d (z.B.: TAS 3171-200 ... further sizes on request)

3171 Standard-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
14	11	36	38	10	1	11	26	15	12	3	M 6 x 10	933	10.9	15078	386	0,0000154	0,08
16	13	75	41	13,5	1,5	15	28	17	12	3	M 6 x 12	933	10.9	13975	431	0,0000285	0,12
18	15	100	44	13,5	1,5	15	30	19	12	3	M 6 x 12	933	10.9	13022	389	0,0000376	0,13
20	17	150	47	13,5	1,5	15	32	22	12	3	M 6 x 12	933	10.9	12191	342	0,0000488	0,15
24	20	215	50	16	2	18	36	26	12	4	M 6 x 16	933	10.9	11459	329	0,0000734	0,19
30	25	430	60	18	2	20	44	32	12	6	M 6 x 16	933	10.9	9549	341	0,0001689	0,30
36	30	740	72	20	2	22	52	38	30	5	M 8 x 20	933	10.9	7958	483	0,0003786	0,47
38	32	760	72	20	2	22	53	40	30	5	M 8 x 20	933	10.9	7958	460	0,0003725	0,45
44	35	790	80	22	2	24	61	47	30	5	M 8 x 20	933	10.9	7162	341	0,0006151	0,59
50	40	1370	90	23,5	2,5	26	68	53	30	7	M 8 x 20	933	10.9	6366	386	0,0010705	0,81
55	45	1840	100	26	3	29	72	58	30	8	M 8 x 20	933	10.9	5730	360	0,0018431	1,13
62	50	1990	110	26	3	29	80	66	30	8	M 8 x 20	933	10.9	5209	318	0,0026706	1,34
68	55	2460	115	26	3	29	86	72	30	9	M 8 x 20	933	10.9	4982	329	0,0031146	1,40
75	60	3830	138	27	4	31	100	79	59	8	M 10 x 25	933	10.9	4152	424	0,0070393	2,28
80	65	4240	138	27	4	31	104	84	59	8	M 10 x 25	933	10.9	4152	399	0,0068412	2,15
85	68	6000	155	34	4	38	114	94	59	10	M 10 x 30	933	10.9	3697	338	0,0138071	3,53
90	70	5830	155	34	4	38	114	94	59	10	M 10 x 30	933	10.9	3697	338	0,0134544	3,35
100	75	7400	170	39	4	43	124	104	59	12	M 10 x 30	933	10.9	3370	305	0,0220976	4,54
105	80	10000	185	44	5	49	136	114	100	10	M 12 x 30	933	10.9	3097	308	0,0362860	6,42
110	85	11700	185	44	5	49	136	114	100	10	M 12 x 30	933	10.9	3097	308	0,0354267	6,12
125	95	14900	215	47,5	5,5	53	160	134	100	12	M 12 x 35	933	10.9	2665	284	0,0703948	9,11
130	100	19600	215	47,5	5,5	53	160	134	100	12	M 12 x 35	933	10.9	2665	284	0,0688524	8,73
135	100	20400	230	52	6	58	173	145	160	10	M 14 x 40	933	10.9	2491	284	0,1009972	11,4
140	105	19000	230	52	6	58	173	145	160	10	M 14 x 40	933	10.9	2491	284	0,0988674	10,9
150	110	26400	263	56	6	62	190	164	160	12	M 14 x 40	933	10.9	2179	274	0,1864460	16,3
155	115	27200	263	56	6	62	190	164	160	12	M 14 x 40	933	10.9	2179	274	0,1833539	15,7
160	120	32000	263	56	6	62	190	164	160	12	M 14 x 40	933	10.9	2179	274	0,1799476	15,2
165	125	38200	290	61	7	68	204	175	250	10	M 16 x 45	933	10.9	1976	297	0,3044866	21,9
175	135	46000	300	60	8	68	214	185	250	12	M 16 x 50	933	10.9	1910	345	0,3444253	22,8
185	145	66700	330	77	8	85	226	194	250	14	M 16 x 50	933	10.9	1736	278	0,6464885	36,1
195	150	82000	350	77	8	85	240	205	250	16	M 16 x 50	933	10.9	1637	300	0,8151453	40,6
200	155	83600	350	77	8	85	240	205	250	16	M 16 x 50	933	10.9	1637	300	0,8058820	39,7
220	165	109000	370	94	10	104	270	226	490	16	M 20 x 60	933	10.9	1549	342	1,2075884	52,1
240	180	140000	405	97	10	107	296	246	490	18	M 20 x 60	933	10.9	1415	342	1,8077432	65,3
260	200	184000	430	109	10	119	318	266	490	21	M 20 x 60	933	10.9	1332	319	2,5259772	80,0
280	220	240000	460	124	10	134	340	287	490	22	M 20 x 60	933	10.9	1246	269	3,6716977	101
300	230	300000	485	132	10	142	360	307	840	20	M 24 x 70	933	10.9	1181	323	4,7555885	117
320	250	332000	520	133	10	143	380	327	840	21	M 24 x 70	933	10.9	1102	319	6,2826175	135
340	260	427000	570	146	12	158	402	348	840	22	M 24 x 80	931	10.9	1005	278	10,2530016	186
360	280	539000	590	150	12	162	424	368	840	24	M 24 x 80	931	10.9	971	278	11,9213225	200
380	290	536000	635	149	14	163	448	388	1250	18	M 27 x 80	933	10.9	902	258	16,5612857	242
390	300	561000	650	152	14	166	458	398	1250	18	M 27 x 80	933	10.9	881	252	18,1541897	253

3171 Standard-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
400	310	648000	660	158	15	173	475	410	1250	20	M 27 x 80	931	10.9	868	255	20,3512933	273
420	330	731300	690	171	15	186	495	430	1250	21	M 27 x 80	931	10.9	830	236	25,7145823	315
440	350	912000	740	181	15	196	516	448	1250	24	M 27 x 80	931	10.9	774	243	36,3755200	393
460	370	1026000	770	181	15	196	536	468	1250	25	M 27 x 80	933	10.9	744	243	42,5268672	423
480	390	1177000	800	201	15	216	556	488	1250	27	M 27 x 80	933	10.9	716	223	54,3812311	500
500	410	1288000	850	201	15	216	580	510	1250	28	M 27 x 80	933	10.9	674	222	70,0908985	577
530	440	1660000	910	223	15	238	616	538	1700	27	M 30 x 90	931	10.9	630	219	102,5969192	740
560	460	2083000	940	223	22	245	646	568	1700	28	M 30 x 90	931	10.9	610	250	115,3714200	771
590	480	2140000	950	240	23	263	670	598	1700	28	M 30 x 100	931	10.9	597	219	126,5966100	810
620	510	2560000	970	268	23	291	716	630	1700	28	M 30 x 100	931	10.9	562	206	149,6295300	904
640	530	2372000	970	269	18	287	736	650	1700	28	M 30 x 100	931	10.9	562	178	145,5701500	862
660	550	2830000	1020	270	22	292	770	670	2200	28	M 33 x 110	931	10.9	535	195	182,4488800	989

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- High spring energy with low weight and volume
- High damping
- Overload secure in block setting
- Independent of the loading rate
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- Variable construction of the friction spring

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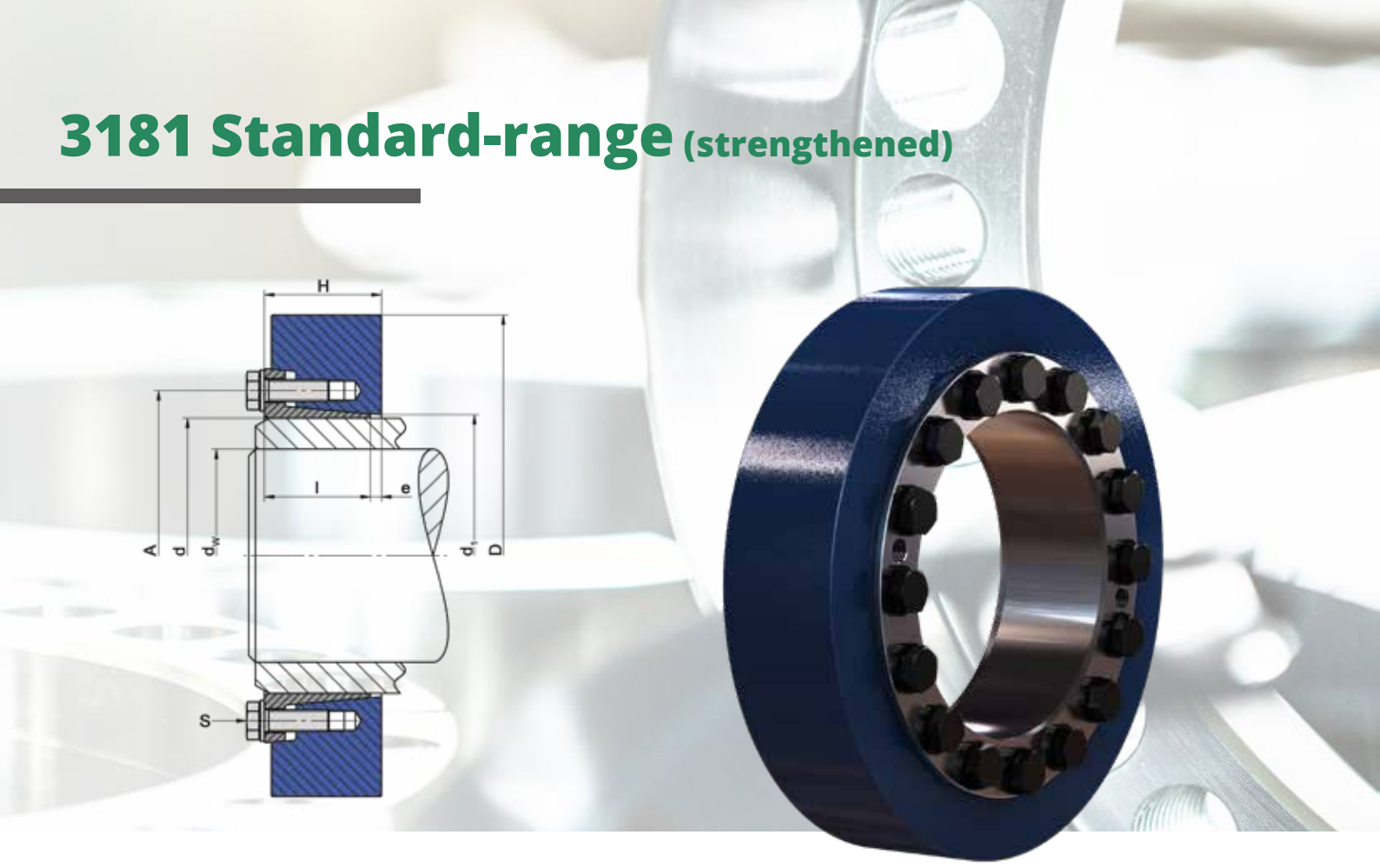
www.tas-schaefer.de
info@tas-schaefer.de

made in GERMANY

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001:2018

3181 Standard-range (strengthened)



Used symbols

d	[mm]	Nominal diameter of the shrink disc
dw	[mm]	Shaft diameter
Mmax	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
I	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d1	[mm]	Attachment size
MA	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
nmax	[min-1]	Permitted rotational frequency
pN	[N/mm2]	Average pressure to the hub
I	[kgm2]	Moment of inertia

Design of the shrink disc

d < 120	Discs galvanized - without washers
d ≥ 120	Discs painted - with washers
d ≥ 195	Cone of bush not slit

Dimensions H & e in unlocked position

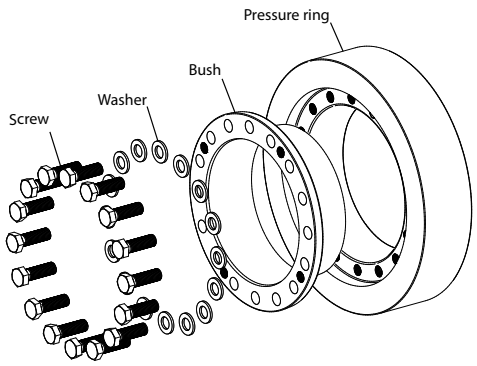
min. yield strength Rp0,2	N/mm²
Solid shaft	350
Hub	450

Variation from the standard shaft diameter dW

> mm	≤ mm	minimal - mm	maximal + mm
10	30	-1	1
30	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	500	-20	10
500	700	-30	20

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



Ordering information: TAS 3181 - d (z.B.: TAS 3181-200 ... further sizes on request)

3181 Standard-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
24	20	275	50	16	2	18	36	26	14	4	M 6 x 16	933	12.9	11459	387	0,0000734	0,19
30	25	570	60	18	2	20	44	32	14	6	M 6 x 16	933	12.9	9549	400	0,0001689	0,30
36	30	880	72	20	2	22	52	38	35	5	M 8 x 20	933	12.9	7958	564	0,0003786	0,47
38	32	910	72	20	2	22	53	40	35	5	M 8 x 20	933	12.9	7958	536	0,0003725	0,45
44	35	960	80	22	2	24	61	47	35	5	M 8 x 20	933	12.9	7162	398	0,0006151	0,59
50	40	1700	90	23,5	2,5	26	68	53	35	7	M 8 x 20	933	12.9	6366	451	0,0010705	0,81
55	45	2000	99,3	26	3	29	72	58	35	6	M 8 x 20	933	12.9	5770	316	0,0017869	1,11
62	50	2400	110	26	3	29	80	66	35	8	M 8 x 20	933	12.9	5209	371	0,0026706	1,34
68	55	3000	115	26	3	29	86	72	35	9	M 8 x 20	933	12.9	4982	384	0,0031146	1,40
75	60	4600	138	27	4	31	100	79	69	8	M 10 x 25	933	12.9	4152	496	0,0070393	2,28
80	65	5200	138	27	4	31	104	84	69	8	M 10 x 25	933	12.9	4152	467	0,0068412	2,15
85	68	6700	155	34	4	38	114	94	69	10	M 10 x 30	933	12.9	3697	396	0,0138071	3,53
90	70	7100	155	34	4	38	114	94	69	10	M 10 x 30	933	12.9	3697	396	0,0134544	3,35
100	75	8800	170	39	4	43	124	104	69	12	M 10 x 30	933	12.9	3370	357	0,0220976	4,54
105	80	12600	185	44	5	49	136	114	120	10	M 12 x 30	933	12.9	3097	360	0,0362860	6,42
110	85	14600	185	44	5	49	136	114	120	10	M 12 x 30	933	12.9	3097	360	0,0354267	6,12
125	95	18700	215	47,5	5,5	53	160	134	120	12	M 12 x 35	933	12.9	2665	333	0,0703948	9,11
130	100	22900	215	47,5	5,5	53	160	134	120	12	M 12 x 35	933	12.9	2665	333	0,0688524	8,73
135	100	23400	230	52	6	58	173	145	190	10	M 14 x 40	933	12.9	2491	334	0,1009972	11,4
140	105	23500	230	52	6	58	173	145	190	10	M 14 x 40	933	12.9	2491	334	0,0988674	10,9
150	110	31300	263	56	6	62	190	164	190	12	M 14 x 40	933	12.9	2179	321	0,1864460	16,3
155	115	34200	263	56	6	62	190	164	190	12	M 14 x 40	933	12.9	2179	321	0,1833539	15,7
160	120	38300	263	56	6	62	190	164	190	12	M 14 x 40	933	12.9	2179	321	0,1799476	15,2
165	125	48300	290	61	7	68	204	175	290	10	M 16 x 45	933	12.9	1976	349	0,3044866	21,9
175	135	58200	300	60	8	68	214	185	290	12	M 16 x 50	933	12.9	1910	405	0,3444253	22,8
185	145	82000	330	77	8	85	224	194	290	14	M 16 x 50	933	12.9	1736	326	0,6464885	36,1
195	150	98200	350	77	8	85	240	205	290	16	M 16 x 50	933	12.9	1637	353	0,8151453	40,6
200	155	102000	350	77	8	85	240	205	290	16	M 16 x 50	933	12.9	1637	353	0,8058820	39,7
220	165	134000	370	94	10	104	270	226	570	16	M 20 x 60	933	12.9	1549	401	1,2075884	52,1
240	180	172000	405	97	10	107	296	246	570	18	M 20 x 60	933	12.9	1415	400	1,8077432	65,3
260	200	226000	430	109	10	119	318	266	570	21	M 20 x 60	933	12.9	1332	373	2,5259772	80,0
280	220	295000	460	124	10	134	340	287	570	22	M 20 x 60	933	12.9	1246	315	3,6716977	101
300	230	367000	485	132	10	142	360	307	980	20	M 24 x 70	933	12.9	1181	379	4,7555885	117
320	250	410000	520	133	10	143	380	327	980	21	M 24 x 70	933	12.9	1102	374	6,2826175	135
340	260	525000	570	146	12	158	402	348	980	22	M 24 x 80	931	12.9	1005	327	10,2530016	186
360	280	553000	590	150	12	162	424	368	980	21	M 24 x 80	931	12.9	971	285	11,9213225	200
380	290	636000	635	149	14	163	448	388	1450	18	M 27 x 80	933	12.9	902	303	16,5612857	242
390	300	666700	650	152	14	166	458	398	1450	18	M 27 x 80	933	12.9	881	296	18,1541897	253
400	310	769000	660	158	15	173	475	410	1450	20	M 27 x 80	931	12.9	868	299	20,3512933	273
420	330	868000	690	171	15	186	495	430	1450	21	M 27 x 80	931	12.9	830	278	25,7145823	315
440	350	1081000	740	181	15	196	516	448	1450	24	M 27 x 80	931	12.9	774	285	36,3755200	393
460	370	1214000	770	181	15	196	536	468	1450	25	M 27 x 80	933	12.9	744	285	42,5268672	423
480	390	1393000	800	201	15	216	556	488	1450	27	M 27 x 80	933	12.9	716	262	54,3812311	500
500	410	1525000	850	201	15	216	580	510	1450	28	M 27 x 80	933	12.9	674	260	70,0908985	577

3181 Standard-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
530	440	1960000	910	226	15	241	616	538	1950	27	M 30 x 90	931	12.9	630	257	102,5969192	740
560	460	2457000	1000	223	22	245	646	568	1950	28	M 30 x 90	931	12.9	610	293	152,4393500	928
590	480	2524000	1000	240	23	263	670	598	1950	28	M 30 x 100	931	12.9	597	257	160,4661900	953
620	510	3018000	1020	268	28	296	716	630	1950	28	M 30 x 100	931	12.9	562	241	189,6250362	1065
640	530	2805000	1020	269	18	287	736	650	1950	28	M 30 x 100	931	12.9	562	208	185,5656631	1024
660	550	3356000	1070	270	22	292	770	670	2600	28	M 33 x 110	931	12.9	535	230	229,1223900	1160

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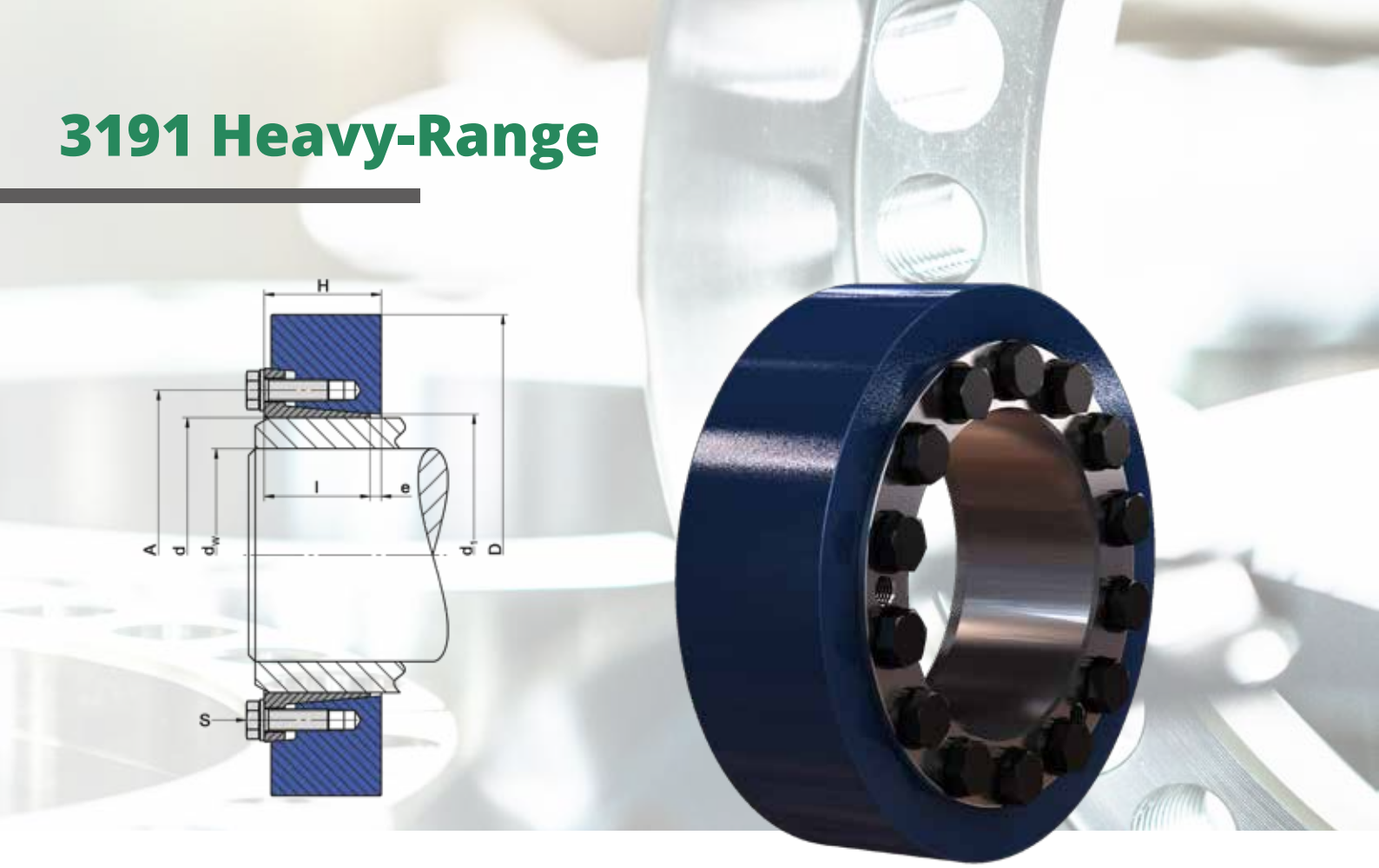
3191 Heavy-Range



Used Symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 200	Discs painted without washers
d ≥ 200	Disc painted with washers
d ≥ 195	Cone of bush not slit

Dimensions H & e in unlocked position

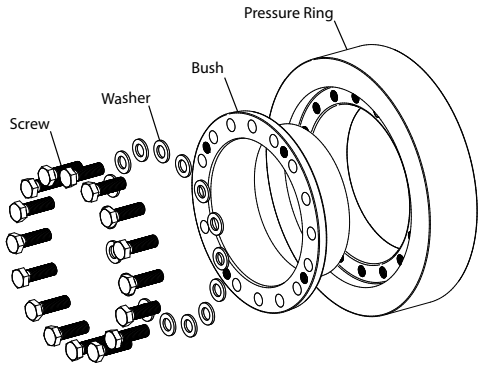
min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Variation from the standard shaft diameter dW

> mm	≤ mm	minimal - mm	maximal + mm
40	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	440	-20	10
440	600	-30	10

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)

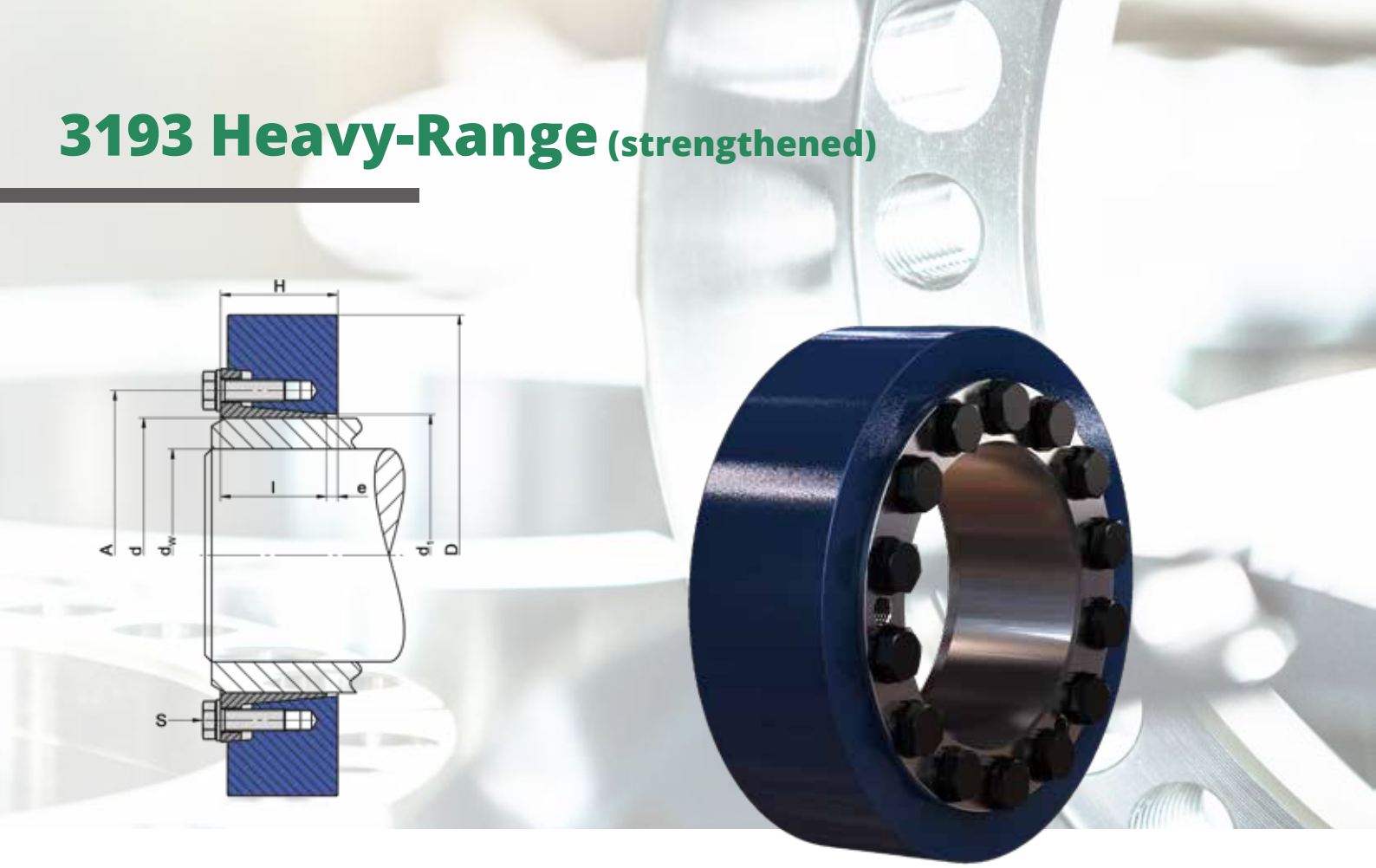


Ordering information: TAS 3191 - d (z.B.: TAS 3191-200 ... further sizes on request)

3191 Heavy-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
110	80	13413	185	65	5	70	139	113	100	10	M 12 x 35	933	12.9	3097	226	0,0508296	8,78
125	90	22621	215	69	6,5	75,5	163	129	250	8	M 16 x 50	933	12.9	2665	291	0,0959929	12,4
135	95	24251	230	69	6,5	75,5	178	144	250	8	M 16 x 50	933	12.9	2491	248	0,1250883	14,1
140	105	30603	230	69	6,5	75,5	178	144	250	8	M 16 x 50	933	12.9	2491	248	0,1278926	14,1
155	115	50510	263	72	9	81	196	159	250	12	M 16 x 50	933	12.9	2179	318	0,2402568	20,6
165	125	62853	290	81	8	89	204	169	250	12	M 16 x 50	933	12.9	1976	285	0,3853659	27,7
175	135	72733	300	81	8	89	214	179	250	12	M 16 x 50	933	12.9	1910	262	0,4359133	28,9
185	145	122608	320	100	12,5	112,5	232	189	480	12	M 20 x 60	933	12.9	1790	310	0,7859084	43,9
200	155	113000	350	102	11	113	246	204	490	14	M 20 x 60	933	10.9	1637	302	1,0778672	53,1
220	165	137000	370	127	9	136	270	225	490	18	M 20 x 60	933	10.9	1549	271	1,5895806	68,6
240	180	180000	405	132	12	144	298	248	490	20	M 20 x 60	933	10.9	1415	260	2,4546318	88,6
260	200	224000	430	148	12	160	326	266	490	22	M 20 x 60	933	10.9	1332	228	3,4273171	109
280	220	305000	460	160	12	172	346	289	840	18	M 24 x 70	933	10.9	1246	241	4,8181962	133
300	240	398000	485	160	16	176	366	305	840	21	M 24 x 70	933	10.9	1181	261	6,0332094	148
320	250	433000	520	170	14	184	388	325	840	22	M 24 x 70	931	10.9	1102	244	8,3297625	179
340	260	460000	570	186	14	200	414	349	1250	18	M 27 x 80	933	10.9	1005	223	13,3704682	243
350	270	494000	570	186	14	200	419	359	1250	18	M 27 x 80	933	10.9	1005	222	12,9280867	231
360	280	576000	590	188	22	210	434	365	1250	20	M 27 x 80	931	10.9	971	235	15,9212399	267
390	300	627000	650	205	15	220	470	398	1250	21	M 27 x 90	931	10.9	881	198	24,8087801	345
420	330	973000	715	222	25	247	508	428	1700	20	M 30 x 80	931	10.9	801	235	41,0007733	477
440	350	1160000	750	233	25	258	528	448	1700	22	M 30 x 90	931	10.9	764	234	51,9773030	550
460	370	1307000	770	240	18	258	548	468	1700	23	M 30 x 90	931	10.9	744	227	57,1634855	568
480	390	1435000	800	270	28	298	572	488	1700	24	M 30 x 90	931	10.9	716	197	76,8838095	707
500	410	1650000	825	270	28	298	592	508	1700	26	M 30 x 90	931	10.9	694	206	86,4231353	743
530	440	2105000	890	306	32	338	640	539	2200	25	M 33 x 100	931	10.9	644	198	133,9516584	999
560	460	2276000	940	306	32	338	670	569	2200	26	M 33 x 100	931	10.9	610	196	166,6476108	1114

3193 Heavy-Range (strengthened)



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 200	Discs painted without washers
d ≥ 200	Disc painted with washers
d ≥ 195	Cone of bush not slit

Dimensions H & e in unlocked position

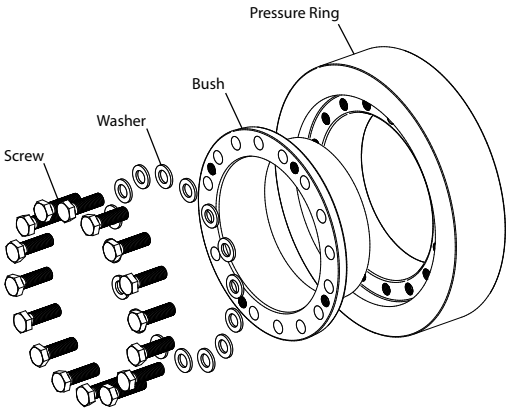
min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
40	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	440	-20	10
440	600	-30	10

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



Ordering information: TAS 3193 - d (z.B.: TAS 3193-200 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

3193 Heavy-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
110	80	15657	185	65	5	70	139	113	120	10	M 12 x 35	933	12.9	3097	272	0,0508296	8,78
125	90	26187	215	69	6,5	75,5	163	129	290	8	M 16 x 50	933	12.9	2665	337	0,0959929	12,4
135	95	28736	230	69	6,5	75,5	178	144	290	8	M 16 x 50	933	12.9	2491	287	0,1250883	14,1
140	105	35156	230	69	6,5	75,5	178	144	290	8	M 16 x 50	933	12.9	2491	287	0,1278926	14,1
155	115	58406	263	72	9	81	196	159	290	12	M 16 x 50	933	12.9	2179	370	0,2402568	20,6
165	125	71252	290	81	8	89	204	169	290	12	M 16 x 50	933	12.9	1976	330	0,3853659	27,7
175	135	81896	300	81	8	89	214	179	290	12	M 16 x 50	933	12.9	1910	303	0,4359133	28,9
185	145	131546	320	100	12,5	112,5	232	189	570	12	M 20 x 60	933	12.9	1790	368	0,7859084	43,9
200	155	131000	350	102	11	113	246	204	570	14	M 20 x 60	933	12.9	1637	352	1,0778672	53,1
220	165	159000	370	127	9	136	270	225	570	18	M 20 x 60	933	12.9	1549	318	1,5895806	68,6
240	180	209000	405	132	12	144	298	248	570	20	M 20 x 60	933	12.9	1415	305	2,4546318	88,6
260	200	260000	430	150	12	162	326	266	570	22	M 20 x 60	933	12.9	1332	268	3,4273171	109
280	220	354000	460	160	12	172	346	289	980	18	M 24 x 70	933	12.9	1246	283	4,8181962	133
300	240	464000	485	162	16	178	366	305	980	21	M 24 x 70	933	12.9	1181	306	6,0332094	148
320	250	505000	520	170	14	184	388	325	980	22	M 24 x 70	931	12.9	1102	287	8,3297625	179
340	260	536000	570	189	14	203	414	349	1450	18	M 27 x 80	933	12.9	1005	262	13,3704682	243
350	270	576000	570	186	14	200	419	354	1450	18	M 27 x 80	933	12.9	1005	260	12,9280867	231
360	280	671000	590	191	22	213	434	365	1450	20	M 27 x 80	933	12.9	971	276	15,9212399	267
390	300	730000	650	208	15	223	470	398	1450	21	M 27 x 90	931	12.9	881	233	24,8087801	345
420	330	1154000	715	222	25	247	508	428	1950	20	M 30 x 80	931	12.9	801	276	41,0007733	477
440	350	1351000	750	233	25	258	528	448	1950	22	M 30 x 90	931	12.9	764	275	51,9773030	550
460	370	1523000	770	243	18	261	548	468	1950	23	M 30 x 90	931	12.9	744	267	57,1634855	568
480	390	1672000	800	270	28	298	572	488	1950	24	M 30 x 90	931	12.9	716	231	76,8838095	707
500	410	1960000	825	270	28	298	592	508	1950	26	M 30 x 90	931	12.9	694	241	86,4231353	743
530	440	2505000	890	306	32	338	640	539	2600	25	M 33 x 100	931	12.9	644	234	133,9516584	999
560	460	2653000	940	309	32	341	670	569	2600	26	M 33 x 100	931	12.9	610	231	166,6476108	1114

TAS SCHÄFER

Shrink Discs 2-part

Displacement controlled| External clamping devices

Description of function

Two part shrink disc of the types TAS 33..

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. Therefore, the force flow does not pass through it.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the screws. By using conical surfaces the inner diameter reduces and the radial pressure is built up. The 33xx range of shrink discs are self-locking.
The clamping forces are provided through the screws.

They are controlled by path (front faces are flush).

The supplied shrink discs are ready for installation.

To achieve proper operation with a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be dry, clean and free of grease. The functional surfaces of the shrink disc, the thread and head rests of the screws, are equipped at the factory with lubricant. Molykote G-Rapid Plus or comparable must be used as a lubricant. The contact surfaces between the hub and the bush must be provided with grease or oil before installation.

Product data

A detailed installation manual is available on our Homepage.

Data sheets
Contact us if a data sheet for an individual product is required.

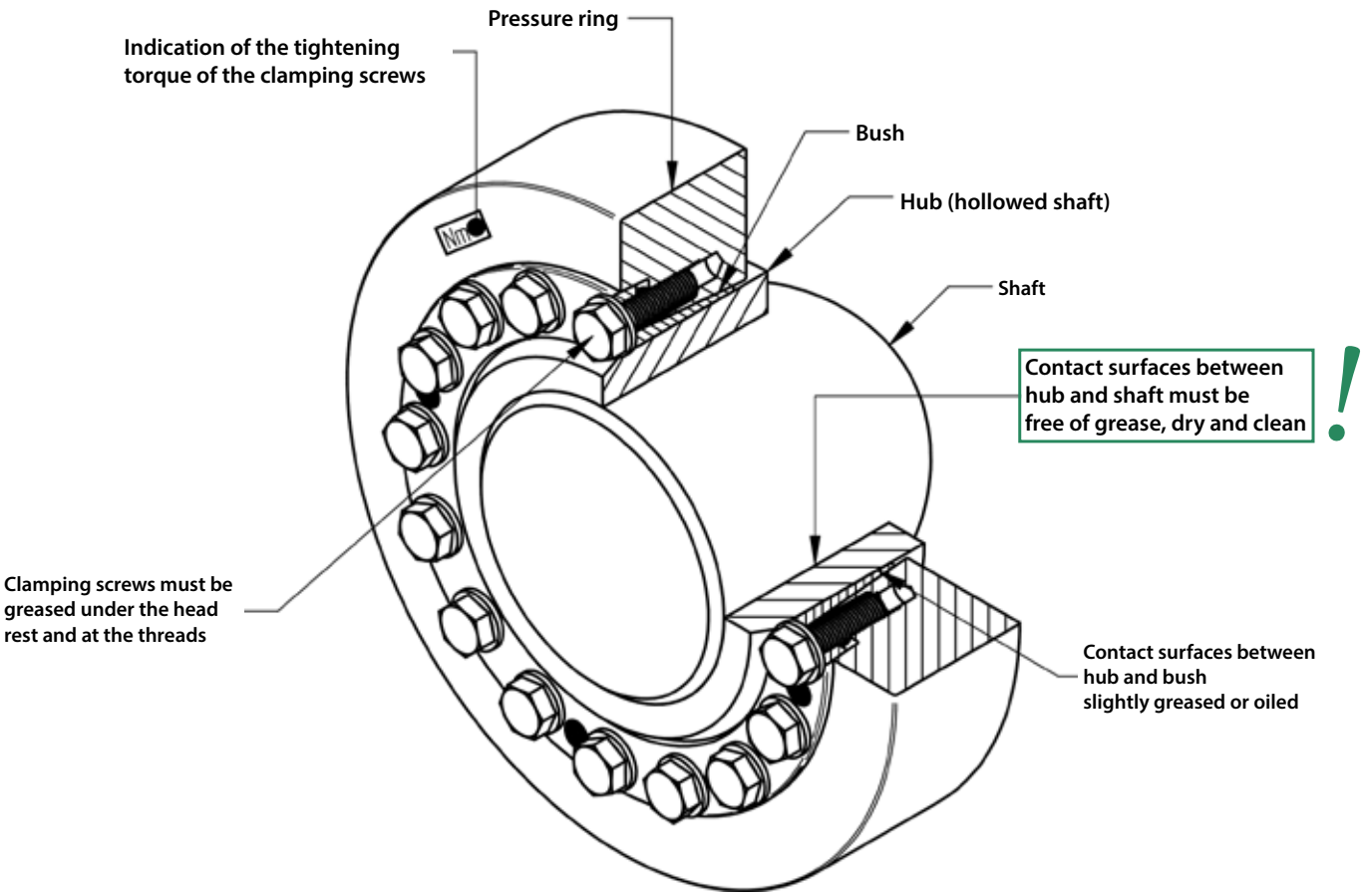
Desired product is not available, please contact us directly.

CAD data
We provide CAD data for our products in various formats.
Please contact:

Rolf Gertner
rolf.gertner@tas-schaefer.de

or

Mike Kemper
mike.kemper@tas-schaefer.de



Basics - Design

Clamping length for shrink discs

The clamping length l of the shrink disk at the junction l_K (between shaft and hub), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stiffness of the shaft. A good approximation can be made from the following equation:

Clamping length of the contact area:

$$l_K = 0{,}316\,(d - d_w) + l$$

The cylindrical surfaces should be located symmetrically under the shrink disc! With a slightly different clamping length the transmissible torque M will not change, because a smaller contact surface results in a higher pressure - ergo a larger contact surface causes lower pressure.

Tightening torque of the clamping screws

The given tightening torque values in the tables for the screws are based on a friction coefficient μges = 0,1.

The values found in the product data based on surface quality and tolerances according to the table below. These values are given as recommendations.

Higher values for the surface roughness reduces the transmissible torque and promote unwanted settling. Larger clearance also reduces the transmissible torque and increases tensions in the hub.

In the case of significantly different values, please contact us!

Tolerance for the outer diameter hub - f7!

Recommended tolerances and surface roughness				
>	≤	FS_{max} mm	Clearance Hub/Shaft	Rz µm
9	18	0,022	H6/h6	10
18	30	0,026	H6/h6	10
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25
630	800	0,154	H7/g6	25
800	1000	0,172	H7/g6	25

Basics - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Transmissible torque

A shrink disc connection is capable of transmitting torque, bending moment and axial force. Alternatively, the transmissible torque M_{max} is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment M_{res}.

The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

At different load cases, these are individually checked against M_{max} ! Mres is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}3\, M_T$
as the limit for the the bending moment*

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,3 MT is due to the change of the surface pressure at the edges of the connection. (see also „Bending moment“)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max}

Bending moment only:
The maximum bending moment corresponds to 0,3 M_T .

Axial force only:
The maximum axial force is $M_{max} \frac{2}{d_W}$.

A different equation applies for very small shrink discs (3173):

$$M_B \leq 0{,}2\, M_T$$

Depending on the application, additional safety factors need to be considered for the individual loads!

Calculation of transmissible torques and forces

The catalogue data relates to specific shaft diameters which we recommend using. If the shaft diameter is between two sizes, the larger shrink disc should be selected. A deviation is possible within certain limits but the predetermined tolerances and surface roughness should be considered.

The shaft diameter and transmissible torque behave approximately proportional to each other. The transmissible torque increases with greater shaft diameter and vice versa. In contrast, the transmissible axial force changes only slightly. This is not due to the shaft diameter but because of the change in stiffness of the hub when the inner diameter changes.

Within certain limits, the changes can be linearly approximated. Information about the range of the respective shaft diameter can be found in the product data.
The determination of the deviating values is explained below. Please contact us if the shaft diameter must be outside the indicated range.
The formula below calculates the torque for specific shaft diameters:

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}} \right)^2$$

The corresponding axial force which is transmitted instead of the torque, results as follows:

$$F_{ax} = M \frac{2}{d_{W\,(table)}}$$

Radial force

Radial forces cause a change in pressure at the contact surface. In the force direction, the pressure increases on the one side and is reduced accordingly on the other side. This depends on the amount of radial force and the rigidity of the parts.

The following equation can be used to approximate the pressure change:

$$\Delta p_W = 0{,}75 \frac{F_{AX}}{d_W\, l_K}$$

The modified pressures $p_{Wmin,\,max}$ results from the following equation:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The minimum pressure p_{Wmin} should be at least 50 N/mm² to avoid gap corrosion. In addition, the material must be designed for a maximum pressure p_{Wmax} .

Basics - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Bending moment

Here the situation is similar to the radial forces. However the pressure is greatest at the ends of the connection in this case. Again, the amount and stiffness are important. This leads to the following approximation:

$$\Delta p_W = 4{,}5 \frac{M_B}{d_W l_K^2}$$

As before, the modified pressures results from:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The conditions for minimum and maximum pressure are the same as before. It should be noted that there could be a change in pressure due to radial force!

Shaft and hub calculation

The catalogue contains information on the generated surface pressure for each shrink disc. The hub will be deformed due to the applied radial force. In addition to the clearance between shaft and hub, shaft stiffness and surface finish should be concidered. For solid shafts the flexibility can be ignored, but with hollow shafts (see „Bore in the shaft (hollow shaft)“) there is greater deformation and thus greater stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. We will not make a presentation and analyse results at this point because we would only be able to cover a very limited range of static applications. Various calculation methods for different cases can be found in engineering literature or using specialiced software. However, for complex geometry often only a calculation by FEA gives reliable results.

The information on the minimum yield strength of shafts and hubs are suggested recommendations, based on typical values for such applications. They are provided as guidelines and are not a replacement for a proper calculation for a given application!

Notch effect

Generally there is a notch effect on the components, caused by the radial pressure of the shrink disc. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because here the inner ring of the shrink disc is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and it is between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

Some standards provide the possibility of a notch factor to be determined by a fit pairing for a shrink-connection. A similar method also can be used for a shrink disc connection. To this end an oversize can be calculated from the applied surface pressures. As a result, a matching fit pair can be determine and thus a resultant notch factor found.

Bore in the shaft (hollow shaft)

A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure pW , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 dW .

TAS
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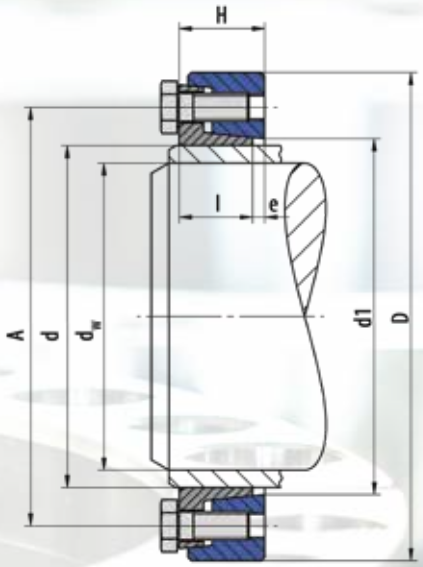
3173 Mini-Range



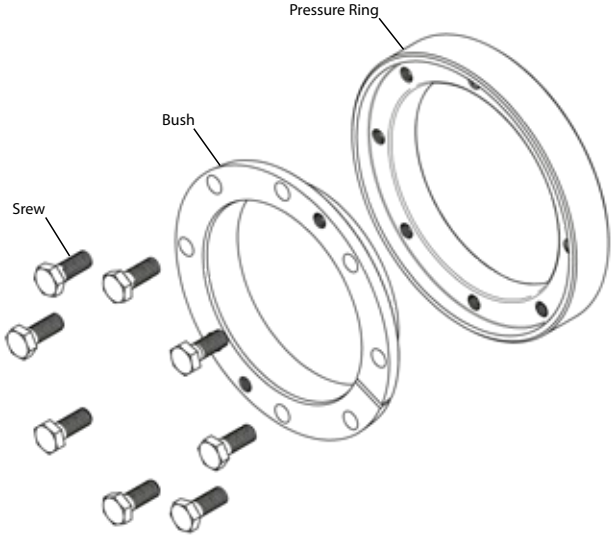
Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min-1]	Permitted rotational frequency
pN	[N/mm2]	Average pressure to the hub
I	[kgm2]	Moment of inertia

Design of the shrink disc

- Discs galvanized
- Without washers
- Bush complete slit
- Dimensions H & e in unlocked position

min. yield strength Rp0,2	N/mm²
Solid shaft	290
Hub	350



Variation from the standard shaft diameter dW			
> mm	≤ mm	minimal - mm	maximal + mm
20	60	-2	1
60	100	-2	2
100	160	-3	2
160	220	-4	2
220	300	-5	2

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)

Ordering information: : TAS 3173-d (z.B.: TAS 3173-100 ... further sizes on request)

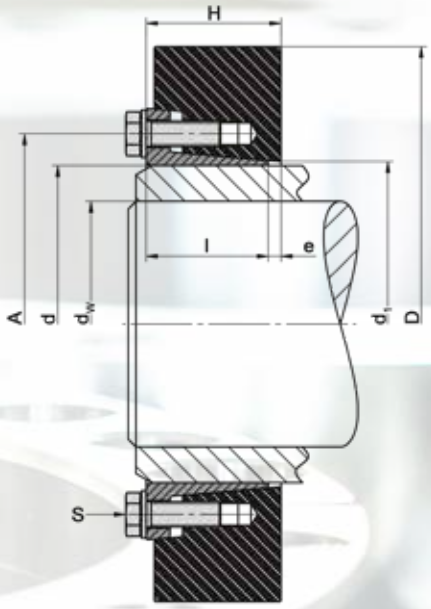
3173 Mini-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
24	20	150	50	11	2,5	13,5	38	25	12	6	M 6 x 12	933	10.9	11400	252	0,0000538	0,14
29	25	220	58	11	2,5	13,5	44	32	12	6	M 6 x 12	933	10.9	9800	227	0,0000964	0,18
34	29	220	64	11	2,5	13,5	50	38	12	6	M 6 x 12	933	10.9	8900	180	0,0001402	0,21
35	29	220	64	11	2,5	13,5	50	38	12	6	M 6 x 12	933	10.9	8900	186	0,0001387	0,21
38	34	280	69	11	2,5	13,5	55	43	12	6	M 6 x 12	933	10.9	8300	153	0,0001869	0,24
40	35	310	69	11	2,5	13,5	55	43	12	6	M 6 x 12	933	10.9	8300	162	0,0001826	0,23
44	36	380	80	15	3	18	62	49	12	6	M 6 x 16	933	10.9	7100	191	0,0004609	0,44
46	38	410	80	15	3	18	62	49	12	6	M 6 x 16	933	10.9	7100	190	0,0004518	0,42
47	40	500	80	15	3	18	62	49	12	6	M 6 x 16	933	10.9	7100	196	0,0004469	0,42
51	44	550	85	15	3	18	67	54	12	6	M 6 x 16	933	10.9	6700	143	0,0005627	0,46
55	48	570	90	15	3	18	72	59	12	8	M 6 x 16	933	10.9	6300	135	0,0006993	0,50
56	48	570	90	15	3	18	72	59	12	8	M 6 x 16	933	10.9	6300	132	0,0006908	0,49
57	48	570	90	15	3	18	72	59	12	8	M 6 x 16	933	10.9	6300	130	0,0006818	0,48
61	53	680	95	15	3	18	76	64	12	8	M 6 x 16	933	10.9	6000	122	0,0008373	0,53
65	58	740	100	15	3	18	82	69	12	8	M 6 x 16	933	10.9	5700	108	0,0010174	0,57
66	58	740	100	15	3	18	82	69	12	8	M 6 x 16	933	10.9	5700	110	0,0010035	0,56
70	62	910	115	21	3	24	94	77	29	6	M 8 x 20	933	10.9	4900	106	0,0026163	1,15
72	63	940	115	21	3	24	94	77	29	6	M 8 x 20	933	10.9	4900	107	0,0025666	1,12
73	63	940	115	21	3	24	94	77	29	6	M 8 x 20	933	10.9	4900	111	0,0025402	1,10
75	67	1140	120	21	3	24	100	82	29	6	M 8 x 20	933	10.9	4700	101	0,0030441	1,21
76	68	1210	120	21	3	24	100	82	29	6	M 8 x 20	933	10.9	4700	103	0,0030170	1,20
78	68	1210	120	21	3	24	100	82	29	6	M 8 x 20	933	10.9	4700	102	0,0029536	1,15
81	73	1240	125	21	3	24	104	87	29	8	M 8 x 20	933	10.9	4500	92	0,0034868	1,26
83	75	1380	125	21	3	24	104	87	29	8	M 8 x 20	933	10.9	4500	95	0,0034103	1,21
85	77	1420	130	21	3	24	110	92	29	8	M 8 x 20	933	10.9	4400	92	0,0040762	1,35
86	78	1470	130	21	3	24	110	92	29	8	M 8 x 20	933	10.9	4400	92	0,0040037	1,32
88	80	1470	130	21	3	24	110	92	29	8	M 8 x 20	933	10.9	4400	95	0,0039124	1,27
93	83	1630	135	21	3,5	24,5	114	97	29	8	M 8 x 20	933	10.9	4200	92	0,0044621	1,33
94	85	1800	135	21	3,5	24,5	114	97	29	8	M 8 x 20	933	10.9	4200	94	0,0044054	1,30
96	88	1730	140	21	3,5	24,5	120	102	29	8	M 8 x 20	933	10.9	4000	83	0,0051883	1,44
98	90	1900	140	21	3,5	24,5	120	102	29	8	M 8 x 20	933	10.9	4000	86	0,0050617	1,39
100	92	2140	145	21	3,5	24,5	124	107	29	8	M 8 x 20	933	10.9	3900	91	0,0059567	1,53
103	95	2310	145	21	3,5	24,5	124	107	29	8	M 8 x 20	933	10.9	3900	92	0,0057132	1,44
106	98	2160	150	21	3,5	24,5	128	112	29	8	M 8 x 20	933	10.9	3800	82	0,0065889	1,56
108	100	2340	150	21	3,5	24,5	128	112	29	8	M 8 x 20	933	10.9	3800	84	0,0064189	1,50
112	103	2340	160	25	4	29	134	119	29	8	M 8 x 20	933	10.9	3500	87	0,0102798	2,16
115	105	2540	160	25	4	29	134	119	29	8	M 8 x 20	933	10.9	3500	91	0,0099175	2,04
120	110	3030	169	25	4	29	140	124	29	8	M 8 x 20	933	10.9	3400	98	0,0106519	2,06
123	113	2910	169	25	4	29	144	129	29	8	M 8 x 20	933	10.9	3300	90	0,0121135	2,22
125	115	3160	169	25	4	29	144	129	29	8	M 8 x 20	933	10.9	3300	93	0,0117986	2,14
130	120	3370	174	25	4	29	150	134	29	12	M 8 x 20	933	10.9	3200	89	0,0130255	2,21
135	125	3810	179	25	4	29	154	139	29	12	M 8 x 20	933	10.9	3200	92	0,0143352	2,28
138	128	3930	184	25	4	29	160	144	29	9	M 8 x 20	933	10.9	3100	92	0,0161739	2,45
140	130	4180	184	25	4	29	160	144	29	9	M 8 x 20	933	10.9	3100	94	0,0157304	2,35

3173 Mini-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
145	135	4650	189	25	4	29	164	149	29	12	M 8 x 20	933	10.9	3000	87	0,0172140	2,43
150	140	5160	194	25	4,5	29,5	170	154	29	12	M 8 x 20	933	10.9	2900	89	0,0187885	2,50
160	150	5390	204	25	4,5	29,5	180	164	29	12	M 8 x 20	933	10.9	2800	81	0,0222215	2,64
166	156	5200	214	25	4,5	29,5	190	174	29	12	M 8 x 20	933	10.9	2600	73	0,0276174	3,01
170	160	5730	214	25	4,5	29,5	190	174	29	12	M 8 x 20	933	10.9	2600	76	0,0260512	2,79
182	170	8350	230	28	5	33	206	186	29	16	M 8 x 20	933	10.9	2400	57	0,0393299	3,66
189	177	8800	240	28	5	33	216	198	29	16	M 8 x 20	933	10.9	2300	54	0,0472032	4,05
192	180	9090	240	28	5	33	216	198	29	16	M 8 x 20	933	10.9	2300	54	0,0452851	3,84
202	190	9670	250	28	5	33	224	206	29	16	M 8 x 20	933	10.9	2200	51	0,0518157	4,01
212	200	10560	260	28	5,5	33,5	234	216	29	16	M 8 x 20	933	10.9	2200	50	0,0589481	4,19
222	210	11660	270	28	5,5	33,5	244	226	29	16	M 8 x 20	933	10.9	2100	50	0,0667091	4,37
232	220	15450	280	28	6	34	254	236	29	16	M 8 x 20	933	10.9	2000	56	0,0751252	4,55
242	230	16220	290	28	6	34	264	246	29	16	M 8 x 20	933	10.9	1900	54	0,0842232	4,72
252	240	17440	300	28	6	34	274	256	29	18	M 8 x 20	933	10.9	1900	53	0,0940295	4,90
260	248	18100	310	28	6,5	34,5	284	266	29	18	M 8 x 20	933	10.9	1800	51	0,1078593	5,27
262	250	18500	310	28	6,5	34,5	284	266	29	18	M 8 x 20	933	10.9	1800	53	0,1045710	5,08

3381 Standard-Range



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

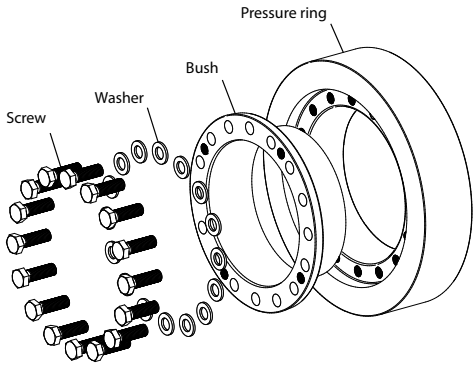
Design of the shrink disc

Discs galvanized - with washers

Cone of bush not slit

Dimensions H & e in unlocked position

min. yield strength Rp0,2	N/mm^2
solid shaft	350
Hub	450



Ordering information: TAS 3381 - d (z.B.: TAS 3381-390 ... further sizes on request)

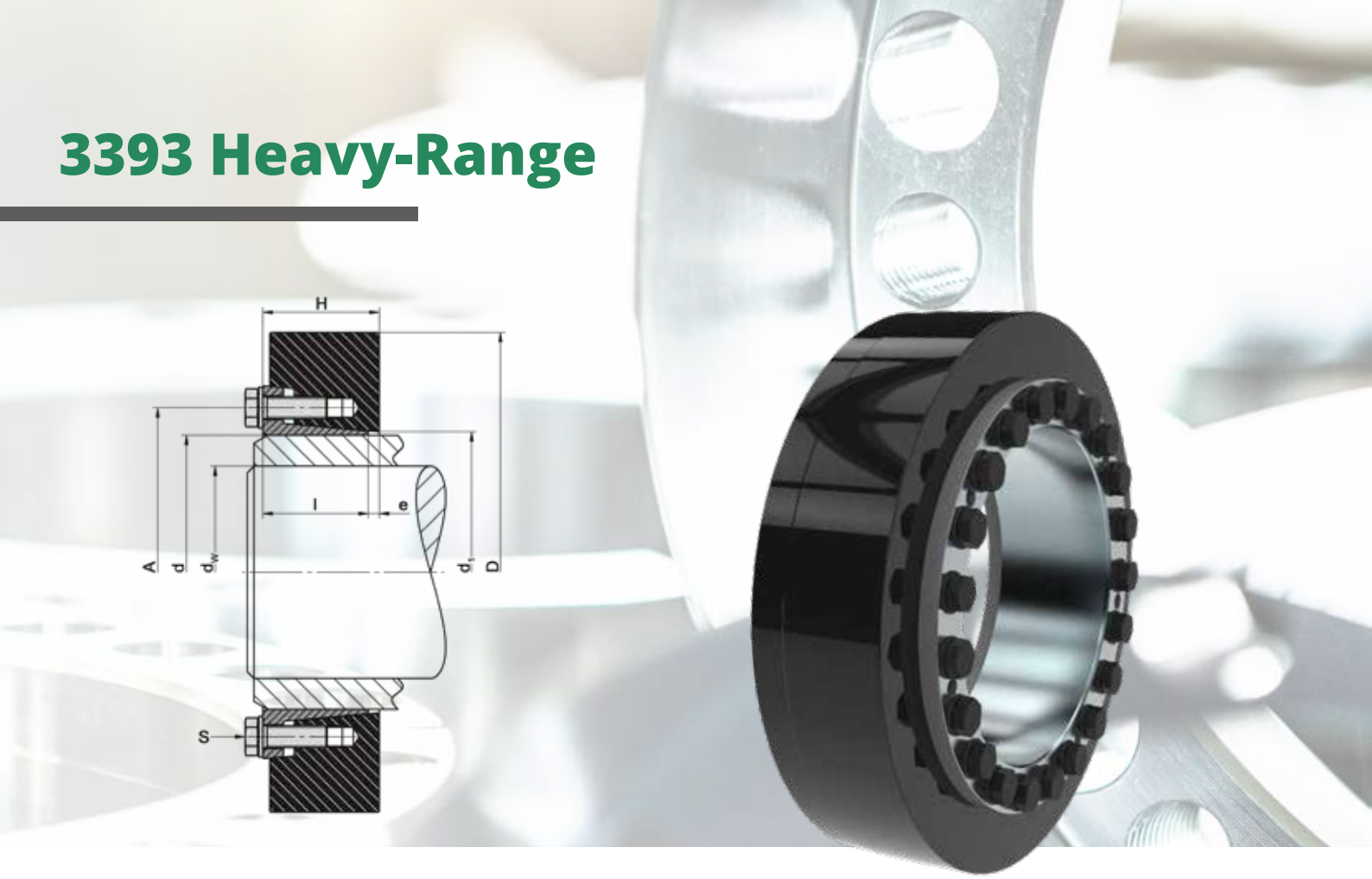
3381 Standard-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Pcs.	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
390	290	780.000	650	146	21	167	454	398	1310	18	M27x080	933	12.9	882	288	17,16	249
	300	845.000															
	320	975.000															
420	320	970.000	680	167	22	189	490	428	1310	18	M27x080	933	12.9	843	258	23,06	300
	330	1.040.000															
	350	1.190.000															
440	340	1.215.000	725	174	26	200	506	448	1310	21	M27x080	933	12.9	791	272	31,40	363
	350	1.295.000															
	370	1.465.000															
460	360	1.400.000	745	174	28	202	534	470	1310	21	M27x090	933	12.9	769	277	34,62	376
	370	1.485.000															
	390	1.670.000															
480	380	1.660.000	790	192	27	219	552	488	1800	20	M30x090	933	12.9	726	267	48,78	476
	390	1.760.000															
	410	1.965.000															
500	400	1.890.000	835	192	28	220	572	508	1800	21	M30x090	933	12.9	687	273	61,43	540
	410	1.995.000															
	430	2.217.000															
530	430	2.400.000	890	213	31	244	606	541	1800	24	M30x090	933	12.9	644	270	88,61	680
	440	2.525.000															
	460	2.785.000															
560	450	2.550.000	920	213	32	245	632	568	1800	24	M30x100	933	12.9	623	262	99,84	710
	460	2.675.000															
	480	2.935.000															
590	470	2.970.000	960	230	33	263	664	598	1800	28	M30x100	933	12.9	597	259	126,93	830
	480	3.110.000															
	500	3.400.000															
620	500	3.405.000	970	254	35	289	706	630	1800	28	M30x100	933	12.9	591	238	141,87	900
	520	3.715.000															
	540	4.040.000															
660	530	4.035.000	1060	260	36	296	748	670	2400	24	M33x110	933	12.9	541	245	211,18	1120
	550	4.375.000															
	570	4.730.000															
700	560	4.605.000	1140	260	38	298	782	710	2400	28	M33x110	933	12.9	503	250	285,23	1320
	580	4.970.000															
	600	5.350.000															
750	600	5.810.000	1200	278	43	321	848	760	2400	32	M33x120	933	12.9	478	256	369,70	1540
	620	6.231.000															
	650	6.900.000															
800	640	6.800.000	1270	296	45	341	900	810	2400	32	M33x130	933	12.9	451	248	490,79	1835
	660	7.270.000															
	700	8.250.000															

3381 Standard-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Pcs.	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
850	650	7.215.000	1340	315	47	362	950	860	3100	30	M36x140	933	12.9	428	242	643,64	2154
	700	8.475.000															
	730	9.275.000															
900	700	8.455.000	1400	332	49	381	1000	915	3100	32	M36x140	933	12.9	409	231	799,46	2433
	730	9.260.000															
	760	10.100.000															
950	750	10.070.000	1450	360	51	411	1050	965	3100	36	M36x140	933	12.9	395	220	980,86	2752
	780	10.950.000															
	820	12.200.000															

3393 Heavy-Range



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

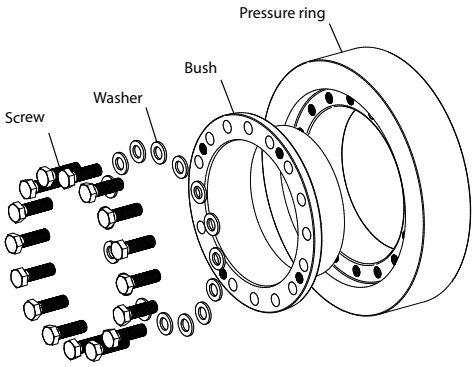
Design of the shrink disc

Discs galvanized - with washers

Cone of bush not slit

Dimensions H & e in unlocked position

min. yield strength Rp0,2	N/mm^2
solid shaft	350
Hub	450



Ordering information: TAS 3393 - d (z.B.: TAS 3393-390 ... further sizes on request)

3393 Heavy-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Pcs	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
390	290	975.000	650	190	27	217	456	398	1310	20	M27x080	933	12.9	882	278	22,29	325
	300	1.050.000															
	320	1.215.000															
420	320	1.300.000	690	214	29	243	486	428	1310	21	M27x080	933	12.9	831	269	31,59	404
	330	1.390.000															
	350	1.590.000															
440	340	1.590.000	750	225	28	253	514	448	1800	21	M30x090	933	12.9	764	274	47,36	530
	350	1.695.000															
	370	1.915.000															
460	360	1.750.000	760	226	30	256	534	468	1800	21	M30x090	933	12.9	754	268	49,26	520
	370	1.860.000															
	390	2.090.000															
480	380	2.110.000	800	246	30	276	552	488	1800	21	M30x090	933	12.9	717	265	66,16	640
	390	2.230.000															
	410	2.490.000															
500	400	2.555.000	850	246	32	278	572	508	1800	24	M30x090	933	12.9	674	287	85,28	740
	410	2.700.000															
	430	2.995.000															
530	430	3.110.000	890	280	34	314	616	538	2600	21	M33x100	933	12.9	644	266	116,22	900
	440	3.275.000															
	460	3.610.000															
560	450	3.455.000	940	280	35	315	646	568	2600	24	M33x100	933	12.9	610	269	144,59	1000
	460	3.625.000															
	480	3.980.000															
590	470	4.030.000	980	296	37	333	666	600	2600	24	M33x110	933	12.9	585	273	179,40	1150
	480	4.220.000															
	500	4.615.000															
620	500	5.045.000	1020	330	39	369	706	630	2600	27	M33x110	933	12.9	562	268	233,16	1370
	520	5.265.000															
	540	5.965.000															
660	530	5.835.000	1090	334	42	376	750	670	3300	27	M36x120	933	12.9	526	275	308,47	1570
	550	6.080.000															
	570	6.835.000															
700	560	6.490.000	1160	334	43	377	802	710	3300	27	M36x120	933	12.9	494	273	396,51	1810
	580	6.740.000															
	600	7.530.000															
750	600	7.675.000	1220	370	44	414	852	760	3300	30	M36x120	933	12.9	470	254	530,79	2140
	620	8.235.000															
	650	9.120.000															

3393 Heavy-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Pcs	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
800	640	9.090.000	1350	360	46	406	920	810	3300	35	M36x130	933	12.9	425	272	792,06	2651
	660	9.710.000															
	700	11.025.000															
850	650	8.925.000	1440	380	44	424	950	860	3300	36	M36x130	933	12.9	398	247	1084,37	3271
	700	10.475.000															
	730	11.470.000															
900	700	10.260.000	1470	400	47	447	1010	912	3300	38	M36x130	933	12.9	390	232	1212,30	3370
	730	11.235.000															
	760	12.255.000															
950	750	12.150.000	1520	430	50	480	1050	970	3300	44	M36x130	933	12.9	377	222	1468,34	3805
	780	13.220.000															
	820	14.730.000															

TAS
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THE TAS SCHÄFER BLACK EDITION IS HERE!

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TAS 3381 / TAS 3393

- 2 part shrink disc
- For higher torque values
- Easy handling
- Design optimized
- Reduced weight
- Optimized dimensions
- For low application temperatures

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58300 Wetter

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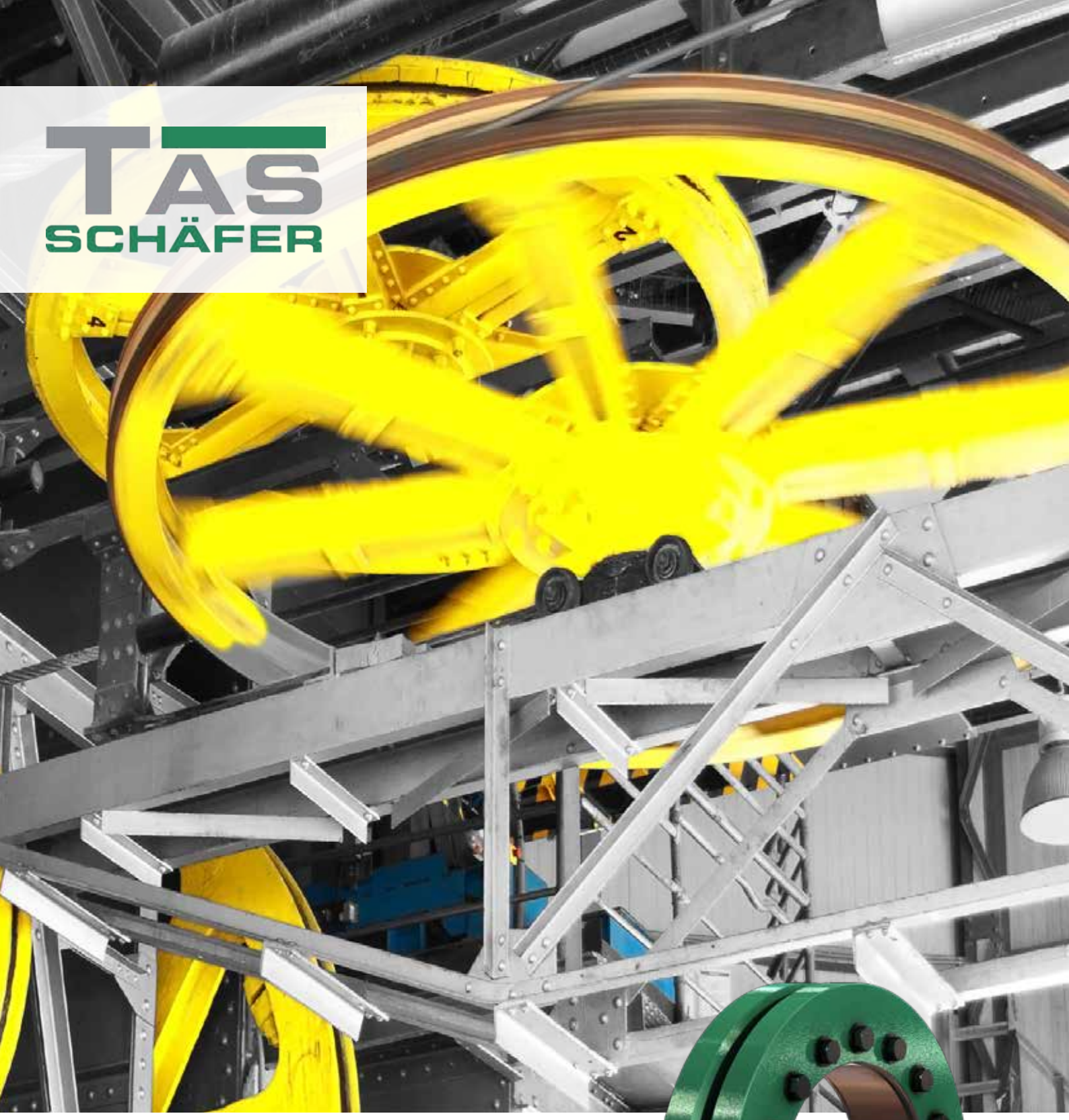

Shrink Discs
3-part

External clamping devices

Description of function

Three part shrink disc of the types TAS 30.. & TAS 52..

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. Therefore, the force flow does not pass through it.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the screws. By using conical surfaces the inner diameter reduces and the radial pressure is built up. The 30xx range of shrink discs are not self-locking. The clamping forces are provided and controlled through the screws.

This allows the direct compensation of the clearance between the shaft and hub, without an overload that may occur on path controlled shrink discs, due to small or over sized clearance.

The supplied shrink discs are ready for installation.

To achieve proper operation with a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be dry, clean and free of grease. The functional surfaces of the shrink disc, the thread and head rests of the screws, are equipped at the factory with lubricant. Molykote G-Rapid Plus or comparable must be used as a lubricant. The contact surfaces between the hub and inner ring must be provided with grease or oil before installation.

Product data

A detailed installation manual is available on our Homepage.

Data sheets

- Contact us if a data sheet for an individual product is required.

We provide CAD data for our products in various formats please contact us:

Rolf Gertner
rolf.gertner@tas-schaefer.de

or

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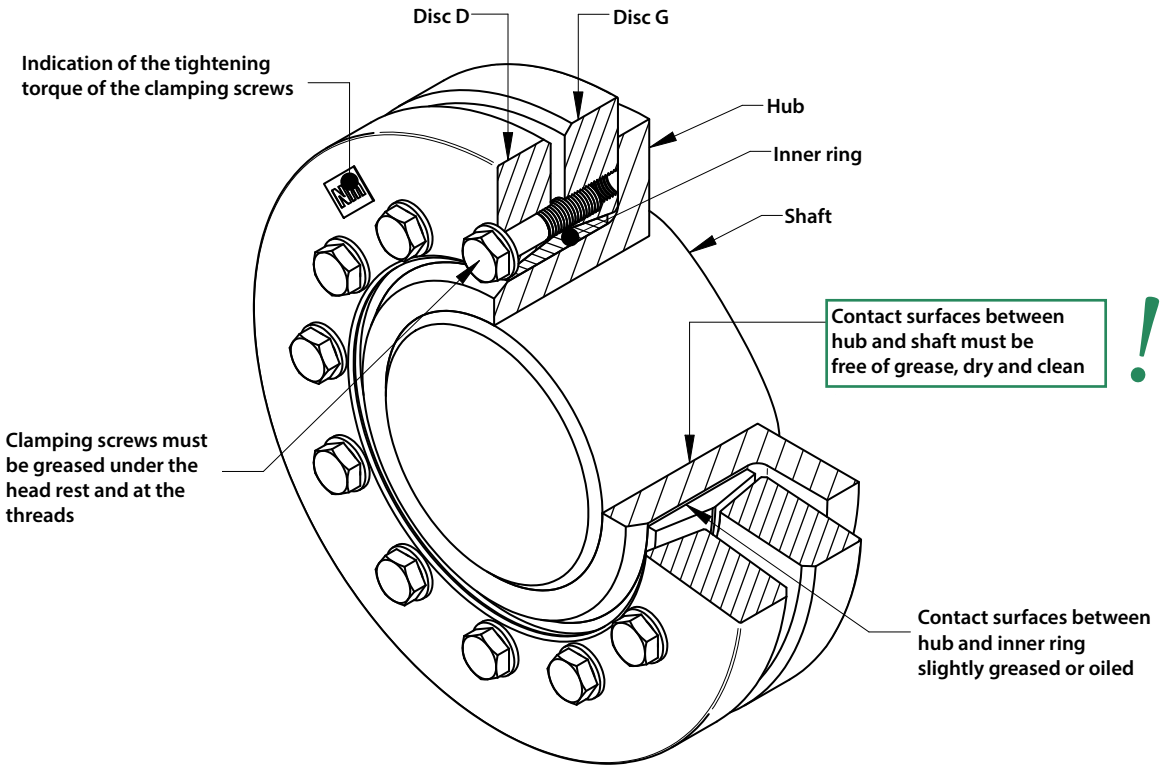


Basics - Design

Clamping length for shrink discs

The clamping length l of the shrink disk at the junction l_K (between shaft and hub), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stiffness of the shaft. A good approximation can be made from the following equation:

Clamping length of the contact area:

$$l_K = 0{,}316\,(d - d_w) + l$$

The cylindrical surfaces should be located symmetrically under the shrink disc! With a slightly different clamping length the transmissible torque M will not change, because a smaller contact surface results in a higher pressure - also a larger contact surface causes lower pressure.

Tightening torque of the clamping screws

The given tightening torque values in the tables for the screws are based on a friction coefficient μ_{ges} = 0,1. In principle, the specified tightening torque M_A can be reduced to M_{Agew} to reduce stresses in the components. This may be necessary for soft materials and bored shafts. The reduction of M_A also reduced the pressure p_N and transmissible torque M. The ratio is approximately proportional and can be calculated according to:

$$M_{(new)} = \frac{M_{Agew}}{M_A}\ M \quad \text{also} \quad p_{N(new)} = \frac{M_{Agew}}{M_A}\ p_N$$

The tightening torques can not be reduced arbitrary, therefore apply the following limits:

$$M_{Agew} \geq \left| \begin{array}{l} \text{Class } 8.8 : 0{,}85\ M_A \\ \text{Class } 10.9 : 0{,}70\ M_A \\ \text{Class } 12.9 : 0{,}60\ M_A \end{array} \right| \leq M_A$$

A further reduction requires additional screw locks!

Tolerances and surfaces

The values found in the product data based on surface quality and tolerances according to the table below. These values are given as recommendations.

Higher values for the surface roughness reduces the transmissible torque and promote unwanted settling. Larger clearance also reduces the transmissible torque and heightened tensions in the hub.

In the case of significantly different values, please contact us!

Tolerance for the outer diameter hub - f7!

Recommended tolerances and surface roughness

>	≤	FS_{max} mm	Clea Hub/Shaft	Rz µm
9	18	0,022	H6/h6	10
18	30	0,026	H6/h6	10
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25
630	800	0,154	H7/g6	25
800	1000	0,172	H7/g6	25

Basic - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Transmissible torque

A shrink disc connection is capable of transmitting torque, bending moment and axial force. Alternatively, the transmissible torque M_{max} is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment M_{res}.

The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

At different load cases, these are individually checked against M_{max} !

M_{res} is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}3\, M_T$
as the limit for the the bending moment*

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,3 M_T is due to the change of the surface pressure at the edges of the connection. (see also „Bending moment“)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max} .

Bending moment only:
The maximum bending moment corresponds to 0,3 M_T .

Axial force only:
The maximum axial force is $M_{max} \frac{2}{d_W}$.

A different equation applies for very small shrink discs (3073):

$$M_B \leq 0{,}2\, M_T$$

Depending on the application, additional safety factors need to be considered for the individual loads!

Calculation of transmissible torques and forces

The catalogue data relates to specific shaft diameters which we recommend using. If the shaft diameter is between two sizes, the larger shrink disc should be selected. A deviation is possible within certain limits but the predetermined tolerances and surface roughness should be considered.

The shaft diameter and transmissible torque behave approximately proportional to each other. The transmissible torque increases with greater shaft diameter and vice versa. In contrast, the transmissible axial force changes only slightly. This is not due to the shaft diameter but because of the change in stiffness of the hub when the inner diameter changes.

Within certain limits, the changes can be linearly approximated. Information about the range of the respective shaft diameter can be found in the product data. The determination of the deviating values is explained below. Please contact us if the shaft diameter must be outside the indicated range. The formula below calculates the torque for specific shaft diameters:

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}} \right)^2$$

The corresponding axial force which is transmitted instead of the torque, results as follows:

$$F_{ax} = M \frac{2}{d_{W\,(table)}}$$

Radial force

Radial forces cause a change in pressure at the contact surface. In the force direction, the pressure increases on the one side and is reduced accordingly on the other side. This depends on the amount of radial force and the rigidity of the parts.

The following equation can be used to approximate the pressure change:

$$\Delta p_W = 0{,}75 \frac{F_{AX}}{d_W\, l_K}$$

The modified pressures $pW_{min,\,max}$ results from the following equation:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The minimum pressure $p_{W_{min}}$ should be at least 50 N/mm² to avoid gap corrosion. In addition, the material must be designed for a maximum pressure $p_{W_{max}}$.

Basics - Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Bending moment

Here the situation is similar to the radial forces. However the pressure is greatest at the ends of the connection in this case. Again, the amount and stiffness are important. This leads to the following approximation:

$$\Delta p_W = 4{,}5 \frac{M_B}{d_W l_K^2}$$

As before, the modified pressures results from:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The conditions for minimum and maximum pressure are the same as before. It should be noted that there could be a change in pressure due to radial force!

Shaft and hub calculation

The catalogue contains information on the generated surface pressure for each shrink disc. The hub will be deformed due to the applied radial force. In addition to the clearance between shaft and hub, shaft stiffness and surface finish should be concidered. For solid shafts the flexibility can be ignored, but with hollow shafts (see „Bore in the shaft (hollow shaft)“) there is greater deformation and thus greater stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. We will not make a presentation and analyse results at this point because we would only be able to cover a very limited range of static applications. Various calculation methods for different cases can be found in engineering literature or using specialiced software. However, for complex geometry often only a calculation by FEM gives reliable results.

The information on the minimum yield strength of shafts and hubs are suggested recommendations, based on typical values for such applications. They are provided as guidelines and are not a replacement for a proper calculation for a given application!

Notch effect

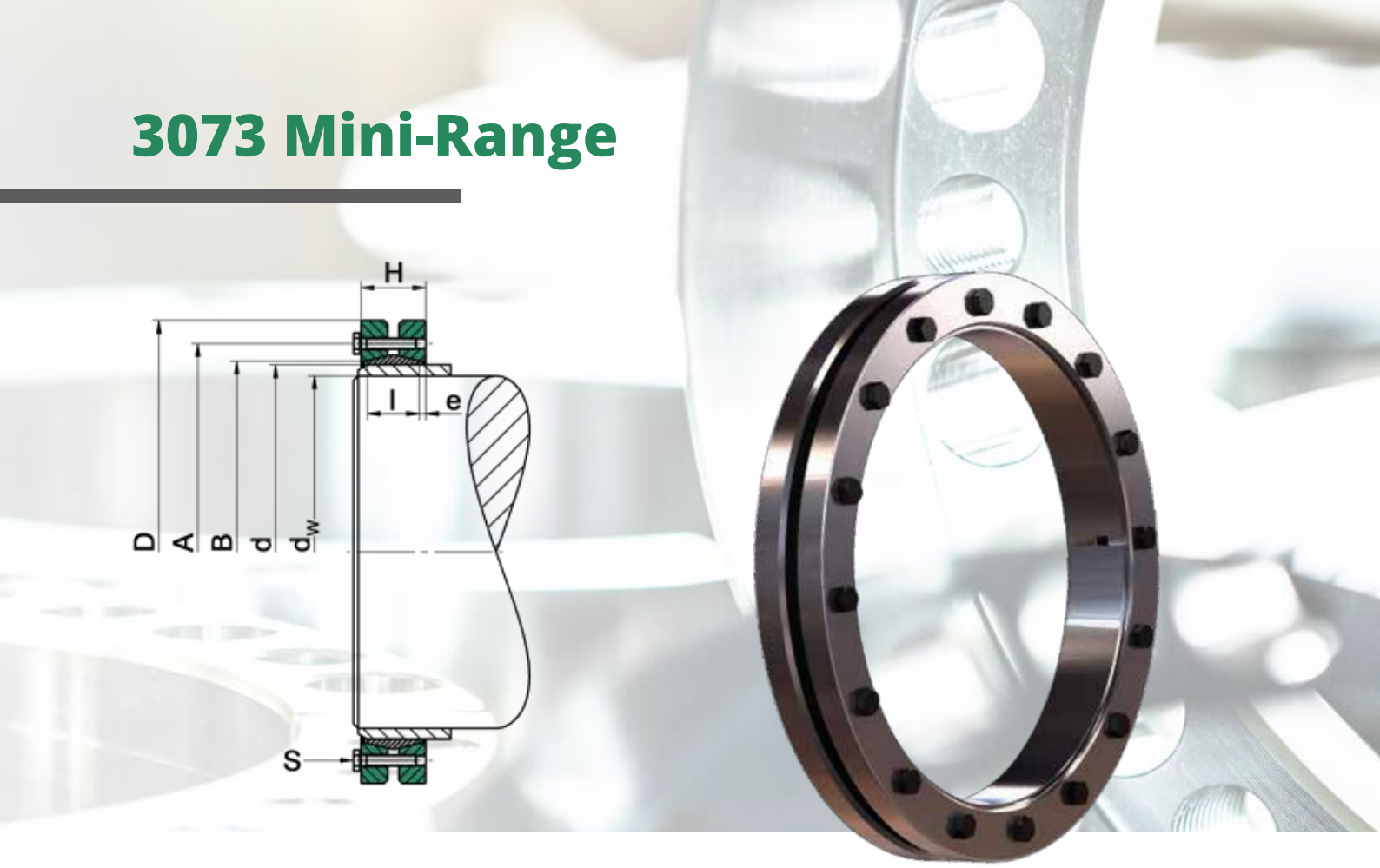
Generally there is a notch effect on the components, caused by the radial pressure of the shrink disc. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because here the inner ring of the shrink disc is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and it is between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

Some standards provide the possibility of a notch factor to be determined by a fit pairing for a shrink-connection. A similar method also can be used for a shrink disc connection. To this end an oversize can be calculated from the applied surface pressures. As a result, a matching fit pair can be determine and thus a resultant notch factor found.

Bore in the shaft (hollow shaft)

A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure pW , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 dW .

3073 Mini-Range



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average Pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

- Discs galvanized
- without washers
- Dimensions H & e in unlocked position

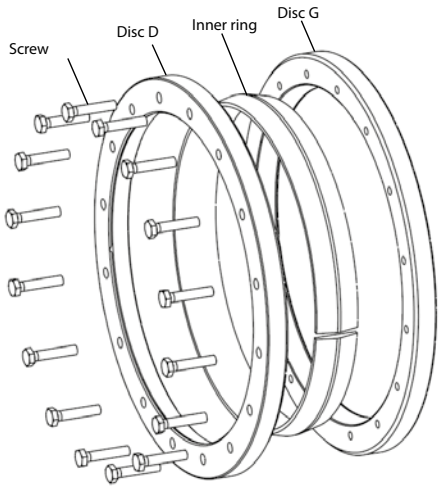
min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
20	60	-2	1
60	100	-2	2
100	160	-3	2
160	220	-4	2
220	300	-5	2

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



Ordering information: TAS 3073-d (Further sizes on request)

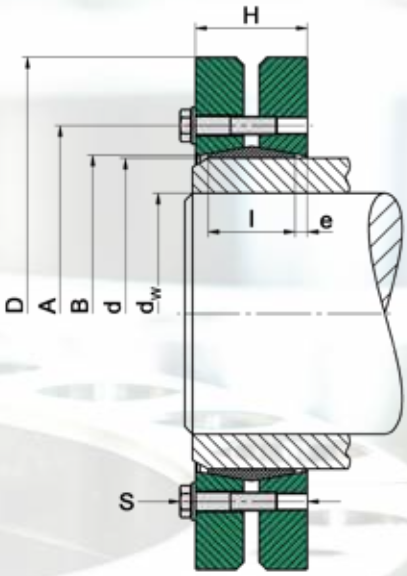
3073 Mini-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
20	18	78	47	10	2	14	34	22	3	4	M 5 x 14	933	8.8	12100	155	0,0000424	0,13
24	20	80	52	10	2,5	15	39,5	26	3	5	M 5 x 14	933	8.8	11000	161	0,0000697	0,17
25	21	88	56	10	2,5	15	43	30	3	5	M 5 x 14	933	8.8	10200	155	0,0000940	0,20
28	24	110	56	10	2,5	15	43	30	3	5	M 5 x 14	933	8.8	10200	138	0,0000931	0,19
29	25	110	58	10	2,5	15	44,5	31,5	3	5	M 5 x 14	933	8.8	9800	133	0,0001051	0,20
30	26	120	58	10	2,5	15	44,5	31,5	3	5	M 5 x 14	933	8.8	9800	129	0,0001066	0,20
31	28	160	60	10	2,5	15	46	33	3	5	M 5 x 14	933	8.8	9500	125	0,0001197	0,21
35	30	180	64	10	2,5	15	50	36,5	3	6	M 5 x 14	933	8.8	8900	133	0,0001530	0,23
36	31	170	66	10	2,5	15	52	38,5	3	6	M 5 x 14	933	8.8	8600	129	0,0001766	0,25
37	32	180	66	10	2,5	15	52	38,5	3	6	M 5 x 14	933	8.8	8600	125	0,0001718	0,24
38	33	290	68	10	2,5	15	55	41,5	4	6	M 5 x 14	933	8.8	8400	163	0,0001972	0,26
40	35	310	68	10	2,5	15	55	41,5	4	6	M 5 x 14	933	8.8	8400	155	0,0001867	0,24
42	37	370	75	14	2,5	19	58	44	4	7	M 5 x 16	933	8.8	7600	123	0,0003510	0,38
46	40	460	80	14	2,5	19	63	49	4	8	M 5 x 16	933	8.8	7100	128	0,0004471	0,42
47	42	530	80	14	2,5	19	63	49	4	8	M 5 x 16	933	8.8	7100	125	0,0004412	0,41
48	43	550	86	14	2,5	19	68,5	53,5	4	8	M 5 x 16	933	8.8	6600	123	0,0006062	0,50
51	45	550	86	14	2,5	19	68,5	53,5	4	8	M 5 x 16	933	8.8	6600	115	0,0005873	0,47
55	49	710	91	14	2,5	19	73	59	4	9	M 5 x 16	933	8.8	6200	120	0,0007349	0,52
56	50	730	91	14	2,5	19	73	59	4	9	M 5 x 16	933	8.8	6200	118	0,0007278	0,51
58	52	710	93	14	2,5	19	74	60	4	9	M 5 x 16	933	8.8	6100	114	0,0007808	0,52
59	53	840	96	14	2,5	19	77	63	4	10	M 5 x 16	933	8.8	5900	125	0,0009047	0,57
60	54	860	96	14	2,5	19	77	63	4	10	M 5 x 16	933	8.8	5900	123	0,0008811	0,55
61	55	880	96	14	2,5	19	77	63	4	10	M 5 x 16	933	8.8	5900	121	0,0008732	0,54
65	59	970	100	14	2,5	19	82	68	4	10	M 5 x 16	933	8.8	5700	113	0,0010135	0,57
66	60	990	100	14	2,5	19	82	68	4	10	M 5 x 16	933	8.8	5700	112	0,0010049	0,56
69	63	1500	105	18	3	24	87	73	6	10	M 5 x 20	933	10.9	5400	117	0,0015194	0,77
70	65	1600	110	18	3	24	90	76	6	10	M 5 x 20	933	10.9	5200	115	0,0018912	0,89
72	67	1600	110	18	3	24	90	76	6	10	M 5 x 20	933	10.9	5200	112	0,0018364	0,85
73	68	1700	110	18	3	24	90	76	6	10	M 5 x 20	933	10.9	5200	110	0,0018300	0,84
75	70	1700	114	18	3	24	93	78,5	6	10	M 5 x 20	933	10.9	5000	107	0,0021181	0,91
78	70	1900	120	18	3	24	101	86	6	12	M 5 x 20	933	10.9	4700	124	0,0025605	1,0
81	73	2000	120	18	3	24	101	86	6	12	M 5 x 20	933	10.9	4700	119	0,0026201	1,0
83	75	2100	120	18	3	24	101	86	6	12	M 5 x 20	933	10.9	4700	116	0,0024748	0,93
85	77	2400	128	22	3	28	105	88,5	12	8	M 6 x 25	933	10.9	4400	103	0,0038365	1,3
88	80	2500	130	22	3	28	108	91,5	12	8	M 6 x 25	933	10.9	4400	99	0,0040046	1,3
94	85	2500	140	22	3	28	119	102,5	12	8	M 6 x 25	933	10.9	4000	93	0,0053318	1,5
95	86	2500	140	22	3	28	119	102,5	12	8	M 6 x 25	933	10.9	4000	92	0,0053672	1,5
98	90	2800	140	22	3	28	119	102,5	12	8	M 6 x 25	933	10.9	4000	89	0,0051107	1,4
99	91	2800	140	22	3	28	119	102,5	12	8	M 6 x 25	933	10.9	4000	88	0,0051452	1,4
100	92	2900	140	22	3	28	119	102,5	12	8	M 6 x 25	933	10.9	4000	87	0,0051800	1,4
103	95	3400	150	22	3	28	128	111,5	12	9	M 6 x 25	933	10.9	3800	95	0,0070357	1,7
104	96	3500	150	22	3	28	128	111,5	12	9	M 6 x 25	933	10.9	3800	95	0,0070796	1,7
105	97	3500	150	22	3	28	128	111,5	12	9	M 6 x 25	933	10.9	3800	94	0,0067050	1,6
108	100	3700	150	22	3	28	128	111,5	12	9	M 6 x 25	933	10.9	3800	91	0,0064058	1,5
112	104	3800	158	22	3	28	135	118,5	12	9	M 6 x 25	933	10.9	3600	88	0,0084393	1,8

3073 Mini-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
115	107	4000	158	22	3	28	135	118,5	12	9	M 6 x 25	933	10.9	3600	85	0,0081152	1,7
120	110	4300	164	25	3,5	32	141	123,5	12	10	M 6 x 25	933	10.9	3400	80	0,0103240	2,0
125	115	4600	169	25	3,5	32	146	128,5	12	10	M 6 x 25	933	10.9	3300	77	0,0115988	2,1
130	120	6000	179	25	3,5	32	156	138,5	12	12	M 6 x 25	933	10.9	3200	89	0,0146823	2,4
135	125	6200	179	25	3,5	32	156	138,5	12	12	M 6 x 25	933	10.9	3200	85	0,0138232	2,2
138	128	6400	182	25	3,5	32	161	143,5	12	12	M 6 x 25	933	10.9	3100	84	0,0149983	2,3
140	130	6500	182	25	3,5	32	161	143,5	12	12	M 6 x 25	933	10.9	3100	82	0,0144991	2,2
145	135	6800	194	25	3,5	32	171	153,5	12	12	M 6 x 25	933	10.9	2900	80	0,0197981	2,7
150	140	7100	194	25	3,5	32	171	153,5	12	12	M 6 x 25	933	10.9	2900	77	0,0180408	2,4
160	150	7700	204	25	3,5	32	181	163,5	12	12	M 6 x 25	933	10.9	2800	72	0,0218452	2,6
166	156	7900	210	25	3,5	32	187	169,5	12	12	M 6 x 25	933	10.9	2700	69	0,0241839	2,7
167	157	9500	214	25	3,5	32	191	173,5	12	14	M 6 x 25	933	10.9	2600	81	0,0267108	2,9
170	160	9700	214	25	3,5	32	191	173,5	12	14	M 6 x 25	933	10.9	2600	79	0,0252099	2,7
173	163	9900	220	25	3,5	32	196	178,5	12	14	M 6 x 25	933	10.9	2600	78	0,0293734	3,0
175	165	10100	220	25	3,5	32	196	178,5	12	14	M 6 x 25	933	10.9	2600	77	0,0286466	2,9
180	170	10400	225	25	3,5	32	201	183,5	12	14	M 6 x 25	933	10.9	2500	75	0,0300966	2,9
185	175	11600	230	25	3,5	32	206	188,5	12	15	M 6 x 25	933	10.9	2400	78	0,0326719	3,0
192	180	11500	240	28	3,5	35	220	200,5	12	15	M 6 x 30	933	10.9	2300	67	0,0436896	3,7
195	183	11600	240	28	3,5	35	220	200,5	12	15	M 6 x 30	933	10.9	2300	66	0,0418359	3,5
198	186	12700	250	28	3,5	35	225	206	12	16	M 6 x 30	933	10.9	2200	69	0,0533946	4,2
202	190	13100	250	28	3,5	35	225	206	12	16	M 6 x 30	933	10.9	2200	68	0,0503607	3,9
212	200	13900	260	28	3,5	35	235	216	12	16	M 6 x 30	933	10.9	2200	65	0,0576788	4,1
214	202	16000	270	28	3,5	35	245	226	12	18	M 6 x 30	933	10.9	2100	72	0,0727013	4,9
215	203	16100	270	28	3,5	35	245	226	12	18	M 6 x 30	933	10.9	2100	72	0,0714750	4,8
220	208	16600	270	28	3,5	35	245	226	12	18	M 6 x 30	933	10.9	2100	70	0,0667150	4,4
222	210	16700	270	28	3,5	35	245	226	12	18	M 6 x 30	933	10.9	2100	70	0,0641466	4,2
230	218	17500	280	28	3,5	35	255	236	12	18	M 6 x 30	933	10.9	2000	67	0,0754975	4,6
232	220	17700	280	28	3,5	35	255	236	12	18	M 6 x 30	933	10.9	2000	67	0,0727232	4,4
235	223	17900	290	28	3,5	35	265	246	12	18	M 6 x 30	933	10.9	1900	66	0,0905613	5,2
236	224	18000	290	28	3,5	35	265	246	12	18	M 6 x 30	933	10.9	1900	65	0,0891199	5,1
242	230	18600	290	28	3,5	35	265	246	12	18	M 6 x 30	933	10.9	1900	64	0,0820318	4,6
252	240	19500	300	28	3,5	35	276	256	12	18	M 6 x 30	933	10.9	1900	61	0,0901836	4,7
257	245	22400	310	28	3,5	35	286	266	12	20	M 6 x 30	933	10.9	1800	67	0,1094506	5,4
262	250	22900	310	28	3,5	35	286	266	12	20	M 6 x 30	933	10.9	1800	66	0,1009057	4,9
266	254	25600	325	28	3,5	35	291	271	12	22	M 6 x 30	933	10.9	1700	71	0,1366953	6,2
278	265	28900	352	32	4	40	304	284	12	24	M 6 x 30	933	10.9	1600	65	0,2389108	9,5
280	267	29200	352	32	4	40	304	286	12	24	M 6 x 30	933	10.9	1600	64	0,2351784	9,3
298	283	30600	370	32	4	40	322	302	12	24	M 6 x 30	933	10.9	1500	60	0,2764874	9,8
300	285	30900	370	32	4	40	324	304	12	24	M 6 x 30	933	10.9	1500	60	0,2722800	9,6
310	285	31000	385	32	4	40	334	314	12	26	M 6 x 30	933	10.9	1400	63	0,3359469	11
335	300	51800	410	34	5	44	365	340	30	20	M 8 x 35	933	10.9	1300	88	0,3854469	11
350	320	23700	405	28	4,5	37	374,7	357	18	15	M 8 x 30	933	10.9	1400	46	0,2650356	7,4
360	330	71400	450	40	5	50	390	366	30	24	M 8 x 40	933	10.9	1200	83	0,7472250	18
370	340	53500	455	42	5	52	400	376	30	18	M 8 x 40	933	10.9	1200	58	0,7738312	18
380	340	52000	455	32	6	44	410	386	30	18	M 8 x 30	933	10.9	1200	74	0,6149938	14

3051 Light-Range



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 140	Discs galvanized without washers
d ≥ 140	Discs painted with washers

Dimensions H & e in unlocked position

Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexgon socket head bolts (Inbus).
(See ordering information)

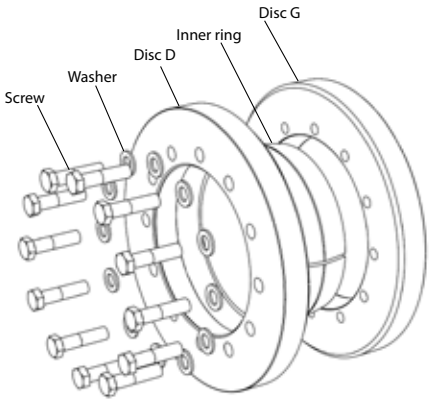
min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
100	170	-5	5
170	230	-10	5
230	320	-10	10
320	480	-15	10
480	510	-20	10

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)

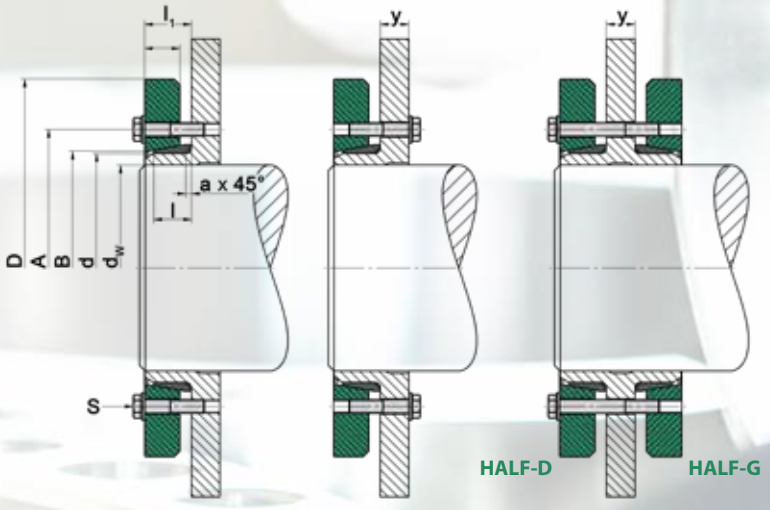


Ordering information: TAS 3051 - d (z.B. 3051-200)
with Inbus: TAS 3051 - d - Inbus (z.B. 3051-200-Inbus)

3051 Light-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
120	100	11900	185	39	6	51	158	129	59	8	M 10 x 40	931	10.9	3000	169	0,0328219	5,4
125	100	10900	185	39	6	51	158	129	59	8	M 10 x 40	931	10.9	3000	163	0,0317794	5,1
140	120	17300	220	39	6	51	175	144	59	9	M 10 x 40	931	10.9	2600	163	0,0663000	7,8
155	135	24800	245	39	6	51	192	159	59	11	M 10 x 40	931	10.9	2300	180	0,1029612	9,8
165	140	33100	260	46	8	62	210	169	100	10	M 12 x 50	931	10.9	2200	190	0,1540906	13
175	150	40000	275	46	8	62	220	179	100	11	M 12 x 50	931	10.9	2000	198	0,1859375	14
185	160	47000	295	46	8	62	225	189	100	12	M 12 x 50	931	10.9	1900	204	0,2576562	17
195	170	63400	315	56	8	72	237	199	100	15	M 12 x 55	931	10.9	1800	199	0,3945938	23
200	180	75700	330	56	8	72	242	204	100	16	M 12 x 55	931	10.9	1700	207	0,4839250	26
220	190	96500	345	66	9	84	265	224	250	10	M 16 x 70	931	10.9	1600	205	0,6487719	31
240	210	132000	370	66	9	84	290	244	250	12	M 16 x 70	931	10.9	1500	226	0,8509	35
260	230	172000	395	72	10	92	310	265	250	14	M 16 x 70	931	10.9	1400	223	1,2299	44
280	240	196000	425	84	10	104	333	285	250	16	M 16 x 75	931	10.9	1300	203	1,8779	58
300	260	243000	460	84	10	104	358	305	250	18	M 16 x 75	931	10.9	1200	213	2,6013	69
320	280	297000	495	84	11	106	378	325	250	20	M 16 x 75	931	10.9	1100	222	3,6914	85
340	300	339000	535	84	11	106	402	345	250	21	M 16 x 75	931	10.9	1000	219	5,0730	101
350	300	388000	545	100	11	122	413	360	490	16	M 20 x 90	931	10.9	1000	213	6,0831	116
360	310	404000	555	100	11	122	423	365	490	16	M 20 x 90	931	10.9	1000	207	6,5097	119
380	330	487000	585	112	12	136	442	387	490	18	M 20 x 100	931	10.9	970	197	8,94	147
390	340	564000	595	112	12	136	452	397	490	20	M 20 x 100	931	10.9	960	214	9,49	150
400	350	614000	615	112	12	136	462	407	490	21	M 20 x 100	931	10.9	930	219	10,90	162
420	360	643000	630	120	12	144	485	427	490	22	M 20 x 100	931	10.9	900	204	12,47	174
440	380	751000	660	120	12	144	505	447	490	24	M 20 x 100	931	10.9	860	212	15,02	191
460	400	934000	685	132	13	158	527	468	490	28	M 20 x 110	931	10.9	830	215	19,23	226
480	420	981000	715	132	13	158	547	488	490	28	M 20 x 110	931	10.9	800	206	22,80	246
500	440	1113000	750	132	13	158	567	508	490	30	M 20 x 110	931	10.9	760	212	27,83	274
530	470	1319000	800	150	12,5	175	600	540	490	33	M 20 x 120	931	10.9	710	194	39,83	346
560	500	1550000	850	150	12,5	175	630	570	490	36	M 20 x 120	931	10.9	670	200	51,03	394
590	530	1652000	870	150	12,5	175	676	602	490	36	M 20 x 130	931	10.9	650	190	54,42	394
620	560	1759000	880	150	12,5	175	686	624	490	36	M 20 x 130	931	10.9	650	181	54,46	376

3051 Half/Split (Light-Range)



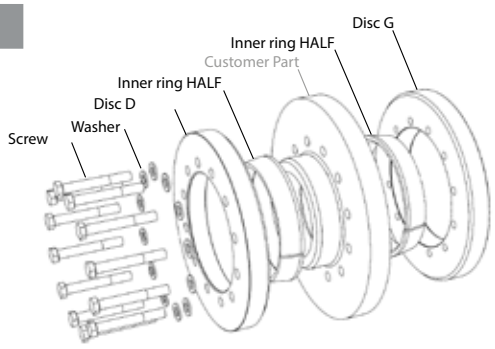
HALF-D

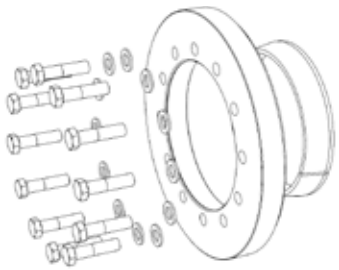
HALF-G

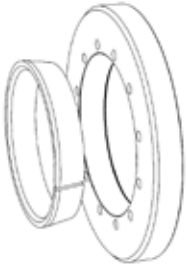
SPLIT

Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia







Design of the shrink disc

d < 140	Discs galvanized without washers
d ≥ 140	Discs painted with washers

min. yield strength Rp0,2	N/mm²
Solid shaft	290
Hub	350

Dimensions H & e in unlocked position

Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

Deviation from the standard shaft diameter d_W see the table **„3051 Light-Range“** and **„Calculation of transmissible torques and forces“** Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

For Typ in ordering information:
- GET means SPLIT
- HALB means HALF

Ordering information: TAS 3051Typ - d - y (for Example: TAS 3051GET-200-Y60 or TAS 3051HALB-G-200-Y30 or TAS 3051HALB-D-200)
with Inbus: TAS 3051Typ - d - y - Inbus (z.B.: TAS 3051GET-200-Y60-Inbus e.t.c.)

3051 Half/Split (Light-Range)

Please note:

All values refer to shrink disk design **HALF**! Please provide us the dimension of „y“ or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

Applies to shrink disc design HALF-G:

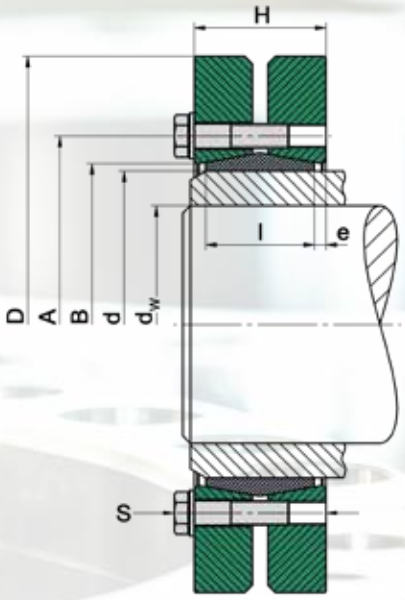
- The required screw length is:
  Screw length (3051 Light-Range) - l1 + 2 a + y (rounded up to standard lengths)

Applies to shrink disc design SPLIT:

- The design consists of 1x HALF-D + 1x HALF-G
- Delivery is possible with or without screws
- Maximum transmittable torque: $M_{ges} = 2\ M_{max}$
- The required screw length: Screw length (3051 Light-Range) + 2 a + y (rounded up to standard lengths)

											HALF-D only							
d mm	d_W mm	M_{max} Nm	*D* mm	*l* mm	*a* mm	l_1 mm	*A* mm	*B* mm	M_A Nm	*Z* Stk	d_B mm	*S*	*DIN*	*Class*	n_{max} min^{-1}	p_N N/mm^2	*I* kgm^2	*Weight* kg
120	100	5900	185	24,5	5	30,5	158	129	59	8	11	M 10 x 40	931	10.9	3000	169	0,0164109	2,7
125	100	5400	185	24,5	5	30,5	158	129	59	8	11	M 10 x 40	931	10.9	3000	163	0,0155781	2,5
140	120	8600	220	24,5	5	30,5	175	144	59	9	11	M 10 x 40	931	10.9	2600	163	0,0331500	3,9
155	135	12400	245	24,5	5	30,5	192	159	59	11	11	M 10 x 40	931	10.9	2300	180	0,0514806	4,9
165	140	16500	260	28	5	36	210	169	100	10	13,5	M 12 x 50	931	10.9	2200	190	0,0770453	6,5
175	150	20000	275	28	5	36	220	179	100	11	13,5	M 12 x 50	931	10.9	2000	198	0,0956250	7,2
185	160	23500	295	28	5	36	225	189	100	12	13,5	M 12 x 50	931	10.9	1900	204	0,1288281	8,5
195	170	31700	315	33	5	41	237	199	100	15	13,5	M 12 x 55	931	10.9	1800	199	0,2058750	12
200	180	37800	330	33	5	41	242	204	100	16	13,5	M 12 x 55	931	10.9	1700	207	0,2419625	13
220	190	48200	345	41	6	50	265	224	250	10	17,5	M 16 x 70	931	10.9	1600	205	0,3348500	16
240	210	66100	370	41	6	50	290	244	250	12	17,5	M 16 x 70	931	10.9	1500	226	0,4376250	18
260	230	86200	395	44	6	54	310	265	250	14	17,5	M 16 x 70	931	10.9	1400	223	0,6149687	22
280	240	98100	425	52	8	62	333	285	250	16	17,5	M 16 x 80	931	10.9	1300	203	0,9390	29
300	260	121000	460	52	8	62	358	305	250	18	17,5	M 16 x 80	931	10.9	1200	213	1,3195	35
320	280	148000	495	52	8	63	378	325	250	20	17,5	M 16 x 80	931	10.9	1100	222	1,8240	42
340	300	169000	535	52	8	63	402	345	250	21	17,5	M 16 x 80	931	10.9	1000	219	2,5616	51
350	300	202000	545	60	10	71	413	360	490	16	22	M 20 x 90	931	10.9	1000	213	3,0416	58
360	310	202000	555	60	10	71	423	365	490	16	22	M 20 x 90	931	10.9	1000	207	3,2275	59
380	330	243000	585	69	12	81	442	387	490	18	22	M 20 x 100	931	10.9	970	197	4,4405	73
390	340	282000	595	69	12	81	452	397	490	20	22	M 20 x 100	931	10.9	960	214	4,7449	75
400	350	307000	615	69	12	81	462	407	490	21	22	M 20 x 100	931	10.9	930	219	5,4495	81
420	360	321000	630	73	12	85	485	427	490	22	22	M 20 x 110	931	10.9	900	204	6,2346	87
440	380	375000	660	73	12	85	505	447	490	24	22	M 20 x 110	931	10.9	860	212	7,5504	96
460	400	467000	685	79	14	92	527	468	490	28	22	M 20 x 120	931	10.9	830	215	9,6167	113
480	420	490000	715	81	14	94	547	488	490	28	22	M 20 x 120	931	10.9	800	206	11,40	123
500	440	556000	750	81	14	94	567	508	490	30	22	M 20 x 120	931	10.9	760	212	13,91	137
530	470	659000	800	90	14	102,5	600	540	490	33	22	M 20 x 120	931	10.9	710	194	19,91	173
560	500	775000	850	90	14	102,5	630	570	490	36	22	M 20 x 120	931	10.9	670	200	25,51	197
590	530	826000	870	90	14	102,5	676	602	490	36	22	M 20 x 130	931	10.9	650	190	27,21	197
620	560	879000	880	90	14	102,5	686	624	490	36	22	M 20 x 130	931	10.9	650	181	27,23	188

3071 Standard-Range



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

Dimensions H & e in unlocked position

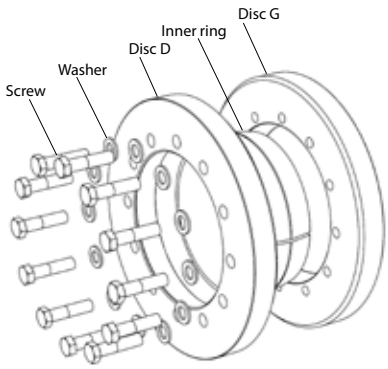
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
10	30	-1	1
30	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	500	-20	10
500	700	-30	20
700	820	-40	20

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Ordering information: TAS 3071 - d (for example: TAS 3071-200 ...(Further sizes on request
with Inbus: TAS 3071 - d - Inbus (for example: TAS 3071-200-Inbus)

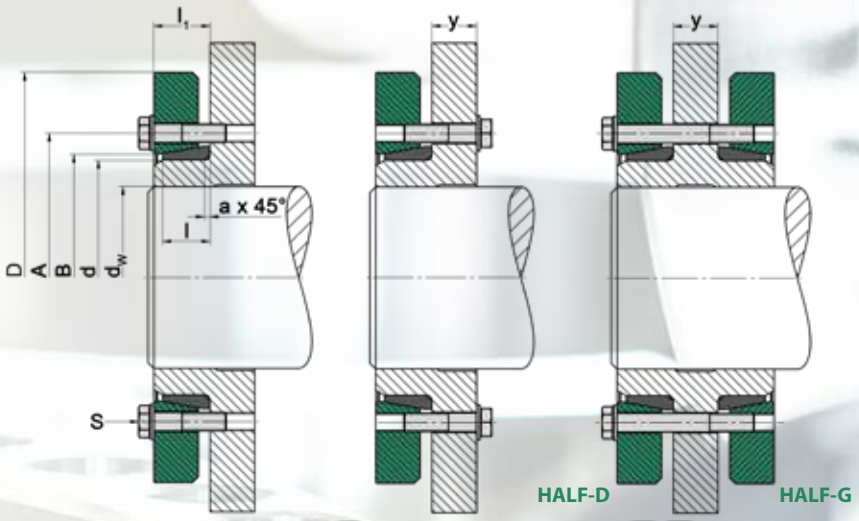
3071 Standard-Range

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
14	11	27	37	9	1,5	12	24	15	2,4	3	M 4 x 10	933	8.8	15400	254	0,0000137	0,07
16	13	59	41	12	1,5	15	27	17	4,8	3	M 5 x 12	933	8.8	13900	240	0,0000266	0,11
18	15	110	43	12	1,5	15	29	19	4,8	4	M 5 x 12	933	8.8	13300	285	0,0000326	0,12
20	17	220	48	14	2,75	19,5	34	24	6	5	M 5 x 18	933	10.9	11900	322	0,0000642	0,19
21	18	240	48	14	2,75	19,5	34	24	6	5	M 5 x 18	933	10.9	11900	307	0,0000618	0,18
22	19	250	48	14	2,75	19,5	36	26	6	5	M 5 x 18	933	10.9	11900	293	0,0000627	0,18
24	20	300	50	14	2,5	19	36	26	6	6	M 5 x 18	933	10.9	11400	322	0,0000731	0,19
30	25	360	60	16	2,75	21,5	44	32	6	6	M 5 x 18	931	10.9	9500	225	0,0001687	0,30
36	30	640	72	18	2,75	23,5	52	38	12	5	M 6 x 20	933	10.9	7900	231	0,0003888	0,48
38	31	910	80	20	3	26	56	41	12	7	M 6 x 20	933	10.9	7100	275	0,0006569	0,67
40	32	740	75	19	2,75	24,5	57	43	12	6	M 6 x 20	933	10.9	7600	236	0,0004967	0,55
41	33	940	80	20	2,75	25,5	61	46	12	7	M 6 x 20	933	10.9	7100	255	0,0006465	0,64
44	35	970	80	20	2,75	25,5	61	47	12	7	M 6 x 20	933	10.9	7100	238	0,0006356	0,61
50	40	1200	90	22	3	28	70	53	12	8	M 6 x 25	933	10.9	6300	217	0,0010998	0,83
55	45	1500	100	23	3,75	30,5	75	58	12	8	M 6 x 25	933	10.9	5700	189	0,0017909	1,1
62	50	2100	110	23	3,75	30,5	86	66	12	10	M 6 x 25	933	10.9	5200	210	0,0025909	1,3
68	55	2200	115	23	3,75	30,5	86	72	12	10	M 6 x 25	933	10.9	4900	191	0,0031236	1,4
75	60	3600	138	25	3,75	32,5	100	79	30	7	M 8 x 30	933	10.9	4100	233	0,0070923	2,3
80	65	4100	145	25	3,75	32,5	100	84	30	7	M 8 x 30	933	10.9	3900	218	0,0085703	2,5
90	70	6000	155	30	4,5	39	114	94	30	10	M 8 x 35	931	10.9	3600	231	0,0132516	3,3
100	75	7300	170	34	5	44	124	104	30	12	M 8 x 35	931	10.9	3300	220	0,0213950	4,4
110	80	8900	185	39	5,5	50	136	114	59	9	M 10 x 40	931	10.9	3000	208	0,0347437	6,0
115	80	9300	200	40	5	50	150	124	59	10	M 10 x 40	931	10.9	2800	215	0,0485678	7,3
120	85	9600	200	40	5	50	150	124	59	10	M 10 x 40	931	10.9	2800	206	0,0476000	7,0
125	90	13100	215	42	6	54	160	134	59	12	M 10 x 40	931	10.9	2600	226	0,0672619	8,7
140	100	17900	230	46	7,25	60,5	175	146	100	10	M 12 x 50	931	10.9	2400	224	0,0996875	11
155	110	23900	265	50	7,25	64,5	192	165	100	12	M 12 x 50	931	10.9	2100	224	0,1885000	16
165	120	38700	290	56	7,5	71	210	175	250	8	M 16 x 55	931	10.9	1900	258	0,3061438	22
175	130	42600	300	56	7,5	71	220	185	250	8	M 16 x 55	931	10.9	1900	243	0,3467969	23
185	140	59000	330	71	7,5	86	236	195	250	10	M 16 x 70	931	10.9	1700	227	0,6261719	35
195	150	79500	350	71	7,5	86	246	210	250	12	M 16 x 70	931	10.9	1600	258	0,8026250	40
200	155	81700	350	71	7,5	86	246	210	250	12	M 16 x 70	931	10.9	1600	252	0,7921875	39
220	165	103000	370	88	8	104	270	230	250	15	M 16 x 80	931	10.9	1500	231	1,1813	51
240	180	144000	405	92	8,5	109	295	248	490	12	M 20 x 80	931	10.9	1400	254	1,7730	64
245	185	147000	410	95	8	111	298	251	490	12	M 20 x 80	931	10.9	1300	241	1,9105	67
260	190	170000	440	103	8,5	120	321	268	490	14	M 20 x 90	931	10.9	1300	244	2,7426	84
280	210	224000	460	114	10	134	346	288	490	16	M 20 x 100	931	10.9	1200	234	3,5888	99
300	230	287000	485	122	10	142	364	308	490	18	M 20 x 100	931	10.9	1100	230	4,6751	115
320	240	326000	520	122	10	142	386	328	490	20	M 20 x 100	931	10.9	1100	239	6,1978	133
340	250	401000	570	134	11	156	408	348	490	24	M 20 x 110	931	10.9	1000	246	10,08	183
350	270	456000	580	140	11	162	432	358	490	24	M 20 x 110	931	10.9	980	229	11,07	193
360	290	519000	590	140	11	162	432	368	490	24	M 20 x 110	931	10.9	970	222	11,76	197
380	300	635000	645	144	12	168	458	387	840	20	M 24 x 120	931	10.9	880	245	17,86	255
390	310	697000	660	144	12	168	468	397	840	21	M 24 x 120	931	10.9	860	251	19,54	266

3071 Standard-Range

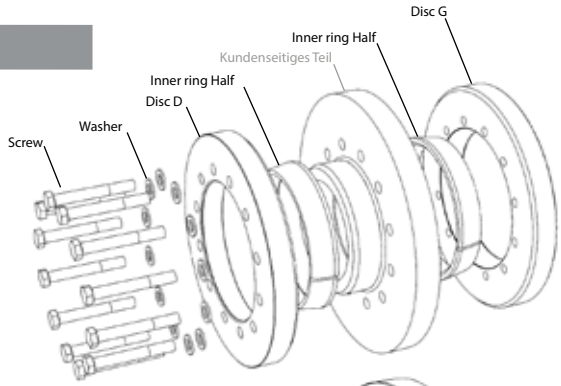
d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
400	320	722000	680	144	12	168	480	407	840	21	M 24 x 120	931	10.9	840	245	22,10	284
420	340	891000	690	164	12	188	504	427	840	24	M 24 x 130	931	10.9	830	234	25,94	318
440	350	891000	750	177	12,5	202	527	447	840	24	M 24 x 140	931	10.9	760	207	39,13	414
460	370	1127000	770	177	12,5	202	547	468	840	28	M 24 x 140	931	10.9	740	231	43,04	428
480	390	1290000	800	188	12,5	213	570	488	840	30	M 24 x 140	931	10.9	710	223	52,77	485
500	410	1431000	850	188	12,5	213	590	508	1250	24	M 27 x 150	931	10.9	670	225	68,08	560
530	440	1961000	900	215	12,5	240	620	538	1250	30	M 27 x 180	931	10.9	630	232	93,54	686
560	460	2165000	950	215	12,5	240	650	568	1250	32	M 27 x 180	931	10.9	600	234	116	763
590	480	2514000	980	235	15	265	685	600	1250	36	M 27 x 180	931	10.9	580	229	142	869
620	510	2856000	1020	235	15	265	715	630	1250	38	M 27 x 180	931	10.9	560	230	166	931
660	540	3676000	1100	260	15	290	760	670	1700	38	M 30 x 200	931	10.9	520	238	246	1195
700	580	4232000	1200	260	15	290	800	710	1700	40	M 30 x 200	931	10.9	470	236	354	1466
720	600	4639000	1230	260	15	290	820	730	1700	42	M 30 x 200	931	10.9	460	241	390	1535
750	620	4967000	1230	280	17,5	315	855	762	1700	44	M 30 x 220	931	10.9	460	225	420	1619
800	660	5501000	1310	280	17,5	315	905	812	1700	46	M 30 x 220	931	10.9	430	220	540	1833
850	700	6322000	1330	310	17,5	345	965	862	1700	50	M 30 x 250	931	10.9	430	204	604	1938
900	740	6950000	1400	310	17,5	345	1015	912	1700	52	M 30 x 250	931	10.9	400	200	738	2130
950	780	8421000	1550	340	20	380	1075	962	2800	42	M 36 x 260	931	10.9	370	199	1285	3111
1000	820	10562000	1620	340	20	380	1125	1012	2800	50	M 36 x 260	931	10.9	350	225	1526	3369

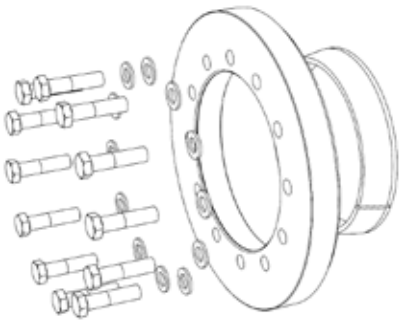
3071 Half/Split (Standard-Range)

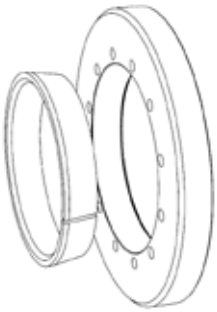


Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
I	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average Pressure to the hub
I	[kgm^2]	Moment of inertia







Design of the shrink disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Dimensions H & e in unlocked position

Deviation from the standard shaft diameter **d_W** see the table **„3071 Standard-Range“** and **„Calculation of transmissible torques and forces“**
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

Ordering information: TAS 3071Typ - d - y (z.B.: TAS 3071GET-200-Y60 oder TAS 3071HALB-G-200-Y30 oder TAS 3071HALB-D-200)
with Inbus: TAS 3071Typ - d - y - Inbus (z.B.: TAS 3071GET-200-Y60-Inbus u.s.w.)

3071 Half/Split (Standard-Range)

Please note:

All values refer to shrink disk design **HALF!** Please provide us the dimension of **„y“** or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

Applies to shrink disc design HALF-G:

- The required screw length is: Screw length **(3071 Standard-Range)** - l_1 + 2 a + y (rounded up to standard lengths)

Applies to shrink disc design SPLIT:

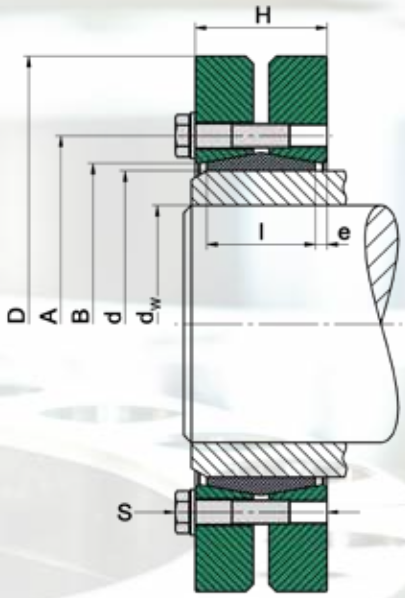
- The design consists of 1x HALF-D + 1x HALF-G
- Delivery is possible with or without screws
- Maximum transmittable torque: $M_{ges} = 2\ M_{max}$
- The required screw length: Screw length **(3071 Standard-Range)** + 2 a + y (rounded up to standard lengths)

											HALF-D only							
d mm	d_W mm	M_{max} Nm	*D* mm	*l* mm	*a* mm	l_1 mm	*A* mm	*B* mm	M_A Nm	*Z* Stk	d_B mm	*S*	*DIN*	*Class*	n_{max} min^{-1}	p_N N/mm^2	*I* kgm^2	*Weight* kg
14	11	14	37	6	0,8	7,5	24	15	2,4	3	4,5	M 4 x 12	933	10.9	15400	257	0,0000078	0,04
16	13	39	41	7,5	0,8	9	27	17	4,8	3	5,5	M 5 x 14	933	10.9	13900	282	0,0000121	0,05
18	15	59	43	7,5	0,8	9	29	19	4,8	4	5,5	M 5 x 14	933	8.8	13300	285	0,0000163	0,06
20	17	110	48	8,5	1,5	11,25	34	24	6	5	5,5	M 5 x 18	933	10.9	11900	322	0,0000304	0,09
21	18	120	48	8,5	1,5	11,25	34	24	6	5	5,5	M 5 x 18	933	10.9	11900	307	0,0000309	0,09
22	19	120	48	8,5	1,5	11,25	36	26	6	5	5,5	M 5 x 18	933	10.9	11900	293	0,0000314	0,09
24	20	150	50	9	1,5	11,5	36	26	6	6	5,5	M 5 x 18	933	10.9	11400	322	0,0000366	0,09
30	25	180	60	10	2	12,75	44	32	6	6	5,5	M 5 x 18	931	10.9	9500	225	0,0000844	0,15
36	30	320	72	11	2	13,75	52	38	12	5	6,6	M 6 x 20	933	10.9	7900	231	0,0001944	0,24
38	31	450	80	12	2	15	56	41	12	7	6,6	M 6 x 22	933	10.9	7100	275	0,0003334	0,34
40	32	370	75	11,5	2	14,25	57	43	12	6	6,6	M 6 x 22	933	10.9	7600	236	0,0002438	0,27
41	33	470	80	12	2	14,75	61	46	12	7	6,6	M 6 x 22	933	10.9	7100	255	0,0003232	0,32
44	35	480	80	12	2	14,75	61	47	12	7	6,6	M 6 x 22	933	10.9	7100	238	0,0003126	0,30
50	40	640	90	13	2	16	70	53	12	8	6,6	M 6 x 25	933	10.9	6300	217	0,0005432	0,41
55	45	750	100	14	2,5	17,75	75	58	12	8	6,6	M 6 x 25	933	10.9	5700	189	0,0009118	0,56
62	50	1000	110	14	2,5	17,75	86	66	12	10	6,6	M 6 x 25	933	10.9	5200	210	0,0013154	0,66
68	55	1100	115	14	2,5	17,75	86	72	12	10	6,6	M 6 x 25	933	10.9	4900	191	0,0015395	0,69
75	60	1800	138	16,5	3	20,25	100	79	30	7	9	M 8 x 30	933	10.9	4100	233	0,0037004	1,2
80	65	2000	145	16,5	3	20,25	100	84	30	7	9	M 8 x 30	933	10.9	3900	218	0,0044566	1,3
90	70	3000	155	20	4	24,5	114	94	30	10	9	M 8 x 35	931	10.9	3600	231	0,0068266	1,7
100	75	3600	170	22	4	27	124	104	30	12	9	M 8 x 35	931	10.9	3300	220	0,0106975	2,2
110	80	4400	185	24,5	4	30	136	114	59	9	11	M 10 x 40	931	10.9	3000	208	0,0173719	3,0
115	80	4600	200	25	4	30	150	124	59	10	11	M 10 x 40	931	10.9	2800	215	0,0239512	3,6
120	85	4800	200	25	4	30	150	124	59	10	11	M 10 x 40	931	10.9	2800	206	0,0238000	3,5
125	90	6500	215	26	5	32	160	134	59	12	11	M 10 x 45	931	10.9	2600	226	0,0332444	4,3
140	100	8900	230	28	5	35,25	175	146	100	10	13,5	M 12 x 50	931	10.9	2400	224	0,0480312	5,3
155	110	11900	265	30	5	37,25	192	165	100	12	13,5	M 12 x 50	931	10.9	2100	224	0,0942500	8,0
165	120	19300	290	33	5	40,5	210	175	250	8	17,5	M 16 x 55	931	10.9	1900	258	0,1530719	11
175	130	21300	300	33	5	40,5	220	185	250	8	17,5	M 16 x 55	931	10.9	1900	243	0,1658594	11

3071 Half/Split (Standard-Range)

											HALF-D only							
d mm	d_W mm	M_{max} Nm	D mm	l mm	a mm	l_1 mm	A mm	B mm	M_A Nm	Z Stk	d_B mm	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
185	140	29500	330	40,5	5	48	236	195	250	10	17,5	M 16 x 70	931	10.9	1700	227	0,3220312	18
195	150	39700	350	40,5	5	48	246	210	250	12	17,5	M 16 x 70	931	10.9	1600	258	0,4013125	20
200	155	40800	350	40,5	5	48	246	210	250	12	17,5	M 16 x 70	931	10.9	1600	252	0,3859375	19
220	165	51800	370	52	8	60	270	230	250	15	17,5	M 16 x 80	931	10.9	1500	231	0,6022250	26
240	180	72400	405	54	8	62,5	295	248	490	12	22	M 20 x 90	931	10.9	1400	254	0,8865000	32
245	185	73900	410	55,5	8	63,5	298	251	490	12	22	M 20 x 90	931	10.9	1300	241	0,9410156	33
260	190	85300	440	59,5	8	68	321	268	490	14	22	M 20 x 90	931	10.9	1300	244	1,3713	42
280	210	112000	460	67	10	77	346	288	490	16	22	M 20 x 100	931	10.9	1200	234	1,7762	49
300	230	143000	485	71	10	81	364	308	490	18	22	M 20 x 100	931	10.9	1100	230	2,3172	57
320	240	163000	520	71	10	81	386	328	490	20	22	M 20 x 100	931	10.9	1100	239	3,0756	66
340	250	163000	570	77	10	88	408	348	490	24	22	M 20 x 110	931	10.9	1000	205	5,0658	92
350	270	228000	580	80	10	91	432	358	490	24	22	M 20 x 110	931	10.9	980	229	5,5068	96
360	290	259000	590	80	10	91	432	368	490	24	22	M 20 x 110	931	10.9	970	222	5,8518	98
380	300	317000	645	85	13	97	458	387	840	20	26	M 24 x 120	931	10.9	880	245	8,8967	127
390	310	348000	660	85	13	97	468	397	840	21	26	M 24 x 120	931	10.9	860	251	9,7705	133
400	320	361000	680	85	13	97	480	407	840	21	26	M 24 x 120	931	10.9	840	245	11,05	142
420	340	445000	690	95	13	107	504	427	840	24	26	M 24 x 130	931	10.9	830	234	12,97	159
440	350	445000	750	101,5	13	114	527	447	840	24	26	M 24 x 140	931	10.9	760	207	19,56	207
460	370	478000	770	101,5	13	114	547	468	840	28	26	M 24 x 140	931	10.9	740	198	21,52	214
480	390	599000	800	109	15	121,5	570	488	840	30	26	M 24 x 150	931	10.9	710	208	26,44	243
500	410	715000	850	109	15	121,5	590	508	1250	24	30	M 27 x 150	931	10.9	670	225	34,04	280
530	440	980000	900	122,5	15	135	620	538	1250	30	30	M 27 x 170	931	10.9	630	232	46,77	343
560	460	1082000	950	122,5	15	135	650	568	1250	32	30	M 27 x 170	931	10.9	600	234	58,07	382
590	480	1257000	980	132,5	15	147,5	685	600	1250	36	30	M 27 x 180	931	10.9	580	229	71,15	435
620	510	1428000	1020	132,5	15	147,5	715	630	1250	38	30	M 27 x 180	931	10.9	560	230	82,99	466
660	540	1838000	1100	145	15	160	760	670	1700	38	33	M 30 x 200	931	10.9	520	238	123	598
700	580	2116000	1200	145	15	160	800	710	1700	40	33	M 30 x 200	931	10.9	470	236	177	733
720	600	2319000	1230	145	15	160	820	730	1700	42	33	M 30 x 200	931	10.9	460	241	195	767
750	620	2483000	1230	155	15	172,5	855	762	1700	44	33	M 30 x 220	931	10.9	460	225	210	810
800	660	2750000	1310	155	15	172,5	905	812	1700	46	33	M 30 x 220	931	10.9	430	220	270	917
850	700	3161000	1330	170	15	187,5	965	862	1700	50	33	M 30 x 230	931	10.9	430	204	302	969
900	740	3475000	1400	170	15	187,5	1015	912	1700	52	33	M 30 x 230	931	10.9	400	200	369	1065
950	780	4210000	1550	185	15	205	1075	962	2800	42	39	M 36 x 250	931	10.9	370	199	643	1556
1000	820	5281000	1620	185	15	205	1125	1012	2800	50	39	M 36 x 250	931	10.9	350	225	763	1685

3081 Standard-Range (strengthened)



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

Dimensions H & e in unlocked position

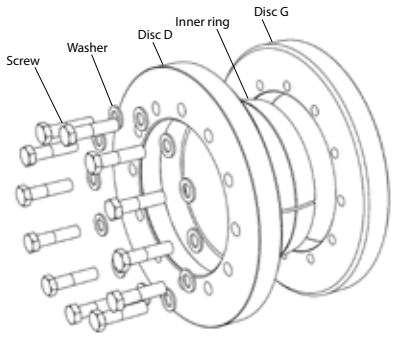
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
10	30	-1	1
30	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	500	-20	10
500	700	-30	20
700	820	-40	20

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



min. yield strength Rp0,2	N/mm²
Solid shaft	350
Hub	450

Ordering information: TAS 3081 - d (z.B.: TAS 3081-200 ... (further sizes on request)
with Inbus: TAS 3081 - d - Inbus (z.B.: TAS 3081-200-Inbus)

3081 Standard-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
14	11	48	37	9	1,5	12	24	15	4	3	M 4 x 10	933	12.9	15400	344	0,0000137	0,07
30	25	520	60	16	2,75	21,5	44	32	8	6	M 5 x 18	931	12.9	9500	300	0,0001687	0,30
36	30	780	72	18	2,75	23,5	52	38	14	5	M 6 x 20	933	12.9	7900	271	0,0003888	0,48
38	31	1100	80	20	3	26	56	41	14	7	M 6 x 20	933	12.9	7100	324	0,0006569	0,67
40	32	910	75	19	2,75	24,5	57	43	14	6	M 6 x 20	933	12.9	7600	277	0,0004967	0,55
50	40	1500	90	22	3	28	70	53	14	8	M 6 x 25	933	12.9	6300	255	0,0010998	0,83
55	45	1800	100	23	3,75	30,5	75	58	14	8	M 6 x 25	933	12.9	5700	222	0,0017909	1,1
62	50	2600	110	23	3,75	30,5	86	66	14	10	M 6 x 25	933	12.9	5200	246	0,0025909	1,3
68	55	2700	115	23	3,75	30,5	86	72	14	10	M 6 x 25	933	12.9	4900	225	0,0031236	1,4
75	60	4400	138	25	3,75	32,5	100	79	35	7	M 8 x 30	933	12.9	4100	272	0,0070923	2,3
80	65	4900	145	25	3,75	32,5	100	84	35	7	M 8 x 30	933	12.9	3900	255	0,0085703	2,5
90	70	7200	155	30	4,5	39	114	94	35	10	M 8 x 35	931	12.9	3600	269	0,0132516	3,3
100	75	8800	170	34	5	44	124	104	35	12	M 8 x 35	931	12.9	3300	257	0,0213950	4,4
110	80	10800	185	39	5,5	50	136	114	69	9	M 10 x 40	931	12.9	3000	243	0,0347437	6,0
115	80	11400	200	40	5	50	150	124	69	10	M 10 x 40	931	12.9	2800	252	0,0485678	7,3
120	85	11700	200	40	5	50	150	124	69	10	M 10 x 40	931	12.9	2800	241	0,0476000	7,0
125	90	15900	215	42	6	54	160	134	69	12	M 10 x 40	931	12.9	2600	265	0,0672619	8,7
140	100	21700	230	46	7,25	60,5	175	146	120	10	M 12 x 50	931	12.9	2400	263	0,0996875	11
155	110	28900	265	50	7,25	64,5	192	165	120	12	M 12 x 50	931	12.9	2100	262	0,1885000	16
165	120	46400	290	56	7,5	71	210	175	290	8	M 16 x 55	931	12.9	1900	303	0,3061438	22
175	130	51200	300	56	7,5	71	220	185	290	8	M 16 x 55	931	12.9	1900	286	0,3467969	23
185	140	70700	330	71	7,5	86	236	195	290	10	M 16 x 70	931	12.9	1700	266	0,6261719	35
195	150	94900	350	71	7,5	86	246	210	290	12	M 16 x 70	931	12.9	1600	303	0,8026250	40
200	155	97700	350	71	7,5	86	246	210	290	12	M 16 x 70	931	12.9	1600	296	0,7921875	39
220	165	124000	370	88	8	104	270	230	290	15	M 16 x 80	931	12.9	1500	271	1,1813	51
240	180	171000	405	92	8,5	109	295	248	570	12	M 20 x 80	931	12.9	1400	296	1,7730	64
245	185	175000	410	95	8	111	298	251	570	12	M 20 x 80	931	12.9	1300	281	1,9105	67
260	190	203000	440	103	8,5	120	321	268	570	14	M 20 x 90	931	12.9	1300	285	2,7426	84
280	210	266000	460	114	10	134	346	288	570	16	M 20 x 100	931	12.9	1200	273	3,5888	99
300	230	340000	485	122	10	142	364	308	570	18	M 20 x 100	931	12.9	1100	268	4,6751	115
320	240	386000	520	122	10	142	386	328	570	20	M 20 x 100	931	12.9	1100	279	6,1978	133
340	250	474000	570	134	11	156	408	348	570	24	M 20 x 110	931	12.9	1000	287	10,08	183
350	270	539000	580	140	11	162	432	358	570	24	M 20 x 110	931	12.9	980	267	11,07	193
360	290	613000	590	140	11	162	432	368	570	24	M 20 x 110	931	12.9	970	259	11,76	197
380	300	750000	645	144	12	168	458	387	980	20	M 24 x 120	931	12.9	880	287	17,86	255
390	310	824000	660	144	12	168	468	397	980	21	M 24 x 120	931	12.9	860	294	19,54	266
400	320	853000	680	144	12	168	480	407	980	21	M 24 x 120	931	12.9	840	286	22,10	284
420	340	1052000	690	164	12	188	504	427	980	24	M 24 x 130	931	12.9	830	274	25,94	318
440	350	1054000	750	177	12,5	202	527	447	980	24	M 24 x 140	931	12.9	760	242	39,13	414
460	370	1331000	770	177	12,5	202	547	468	980	28	M 24 x 140	931	12.9	740	270	43,04	428
480	390	1523000	800	188	12,5	213	570	488	980	30	M 24 x 140	931	12.9	710	261	52,77	485
500	410	1691000	850	188	12,5	213	590	508	1450	24	M 27 x 150	931	12.9	670	263	68,08	560
530	440	2314000	900	215	12,5	240	620	538	1450	30	M 27 x 180	931	12.9	630	272	93,54	686
560	460	2554000	950	215	12,5	240	650	568	1450	32	M 27 x 180	931	12.9	600	274	116	763
590	480	2967000	980	235	15	265	685	600	1450	36	M 27 x 180	931	12.9	580	268	142	869
620	510	3370000	1020	235	15	265	715	630	1450	38	M 27 x 180	931	12.9	560	269	166	931

3081 Standard-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
660	540	4329000	1100	260	15	290	760	670	1950	38	M 30 x 200	931	12.9	520	278	246	1195
700	580	4980000	1200	260	15	290	800	710	1950	40	M 30 x 200	931	12.9	470	276	354	1466
720	600	5456000	1230	260	15	290	820	730	1950	42	M 30 x 200	931	12.9	460	282	390	1535
750	620	5844000	1230	280	17,5	315	855	762	1950	44	M 30 x 220	931	12.9	460	263	420	1619
800	660	6475000	1310	280	17,5	315	905	812	1950	46	M 30 x 220	931	12.9	430	258	540	1833
850	700	7443000	1330	310	17,5	345	965	862	1950	50	M 30 x 250	931	12.9	430	238	604	1938
900	740	8180000	1400	310	17,5	345	1015	912	1950	52	M 30 x 250	931	12.9	400	234	738	2130
950	780	10005000	1550	340	20	380	1075	962	3300	42	M 36 x 260	931	12.9	370	234	1285	3111
1000	820	12541000	1620	340	20	380	1125	1012	3300	50	M 36 x 260	931	12.9	350	265	1526	3369

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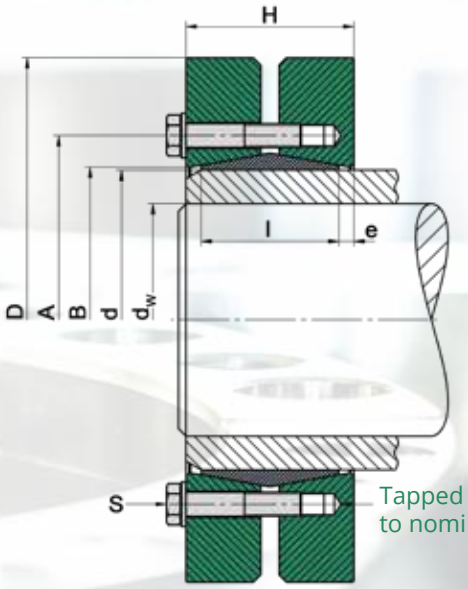
3091 Heavy-Range



Tapped through holes up to nominal diameter 140

Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

Dimensions H & e in unlocked position

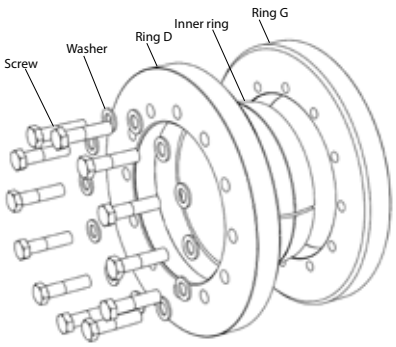
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
40	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	440	-20	10
440	600	-30	10

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



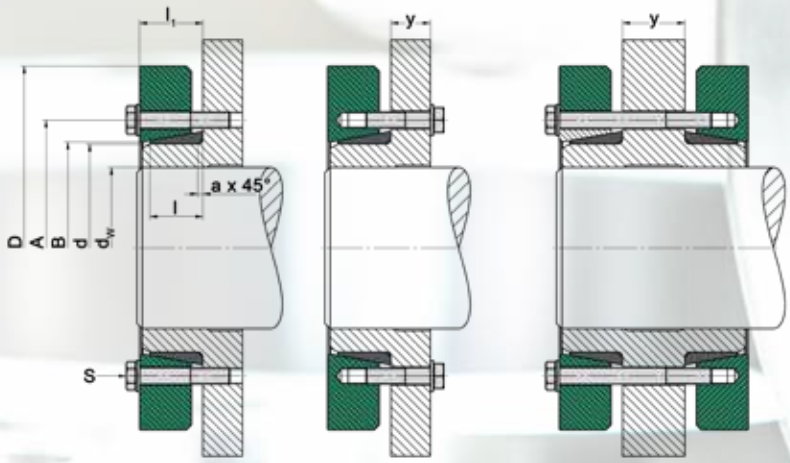
min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Ordering information: **TAS 3091 - d** (e.g.: TAS 3091-200 ... (Further sizes on request))
with Inbus: TAS 3091 - d - Inbus (e.g.: TAS 3091-200-Inbus)

3091 Heavy-Range

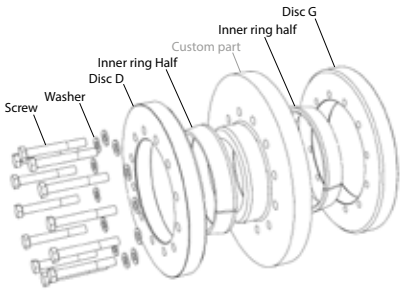
d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
40	30	890	80	25	3,5	32	62	43	30	4	M 8 x 30	933	10.9	7100	249	0,0008300	0,83
44	34	1300	85	28	3	34	66	47	30	5	M 8 x 30	933	10.9	6700	253	0,0011451	1,0
50	40	2500	95	30	4,5	39	73	54	30	7	M 8 x 35	933	10.9	6000	291	0,0020169	1,4
55	45	2900	105	30	4,5	39	78	59	30	7	M 8 x 35	933	10.9	5400	264	0,0029856	1,7
62	50	3200	115	30	4,5	39	85	66	30	7	M 8 x 35	933	10.9	4900	235	0,0042672	2,0
68	55	3900	120	30	4,5	39	92	72	30	8	M 8 x 35	933	10.9	4700	244	0,0049938	2,1
75	60	5900	145	36	5	46	105	84	59	7	M 10 x 40	933	10.9	4100	257	0,0101760	3,3
80	65	6600	145	36	5	46	105	84	59	7	M 10 x 40	933	10.9	3900	241	0,0123412	3,6
90	70	7600	160	40	5	50	116	94	59	8	M 10 x 40	933	10.9	3500	220	0,0202200	4,8
100	75	9800	170	44	5	54	126	104	59	10	M 10 x 45	931	10.9	3300	225	0,0262575	5,4
110	80	12000	185	50	5	60	138	114	59	12	M 10 x 45	931	10.9	3000	216	0,0411134	7,1
120	85	14300	210	55	5	65	155	125	100	10	M 12 x 50	931	10.9	2700	219	0,0731250	10
125	90	15600	215	55	5	65	160	129	100	10	M 12 x 50	931	10.9	2600	210	0,0850438	11
140	100	21000	230	60	7	74	175	144	100	12	M 12 x 55	931	10.9	2400	207	0,1178125	13
155	110	29500	265	66	7	80	198	164	100	15	M 12 x 60	931	10.9	2100	212	0,2356250	20
165	120	48100	290	72	8	88	210	174	250	10	M 16 x 70	931	10.9	1900	251	0,3757219	27
175	130	53100	300	72	8	88	220	184	250	10	M 16 x 70	931	10.9	1900	237	0,4221875	28
185	140	83500	330	92	10	112	236	194	250	14	M 16 x 80	931	10.9	1700	245	0,8229688	46
200	150	95400	350	92	10	112	246	204	250	15	M 16 x 80	931	10.9	1600	243	1,0359000	51
220	165	138000	370	114	10	134	270	224	250	20	M 16 x 90	931	10.9	1500	238	1,5287	66
240	180	180000	405	120	12	144	295	244	490	15	M 20 x 100	931	10.9	1400	243	2,3548	85
260	200	247000	430	136	12	160	321	265	490	18	M 20 x 110	931	10.9	1300	238	3,2825	104
280	220	330000	460	148	12	172	346	285	490	21	M 20 x 120	931	10.9	1200	237	4,6400	128
300	240	388000	485	152	12	176	364	305	490	22	M 20 x 120	931	10.9	1100	225	5,8134	143
320	250	428000	520	160	12	184	386	325	490	24	M 20 x 130	931	10.9	1100	219	7,9220	170
340	260	546000	570	176	12	200	420	345	840	21	M 24 x 130	931	10.9	1000	236	13,10	238
350	280	626000	580	176	12	200	425	355	840	21	M 24 x 130	931	10.9	980	229	13,94	243
360	290	687000	590	180	12	204	432	365	840	22	M 24 x 140	931	10.9	970	228	14,81	248
380	305	719000	645	180	12	204	458	387	840	22	M 24 x 140	931	10.9	880	216	21,65	309
390	310	789000	660	188	12	212	468	397	840	24	M 24 x 140	931	10.9	860	220	24,68	336
400	320	817000	680	188	12	212	480	407	840	24	M 24 x 140	931	10.9	840	214	27,85	358
420	340	1110000	690	214	12	238	504	427	840	30	M 24 x 150	931	10.9	830	224	33,52	411
440	350	1173000	750	224	14	252	527	448	1250	24	M 27 x 170	931	10.9	760	215	49,52	524
460	370	1483000	770	224	14	252	547	468	1250	28	M 27 x 170	931	10.9	740	240	54,40	541
480	390	1694000	800	246	14	274	580	488	1250	30	M 27 x 180	931	10.9	710	224	70,39	647
500	410	1910000	850	246	14	274	600	508	1250	32	M 27 x 180	931	10.9	670	229	90,81	747
530	440	2207000	910	275	14	303	630	538	1250	34	M 27 x 200	931	10.9	630	206	130	939
660	540	4116000	1070	310	15	340	780	670	2800	30	M 36 x 240	931	10.9	530	224	263	1331

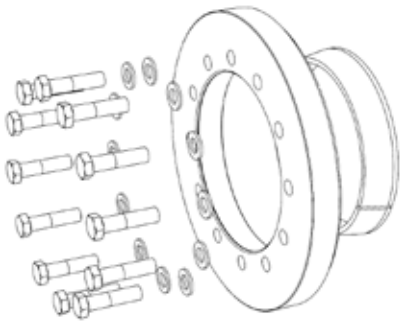
3091 Half/Split (Heavy-range)



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
I	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia





Design of the disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

min. yield strength Rp0,2	N/mm²
Solid shaft	290
Hub	350

Dimensions H & e in unlocked position

Deviation from the standard shaft diameter d_W see the table „**3091 Standard-Range**“ and „**Calculation of transmissible torques and forces**“

Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

For Typ in ordering information:
- GET means SPLIT
- HALB means HALF

Ordering information: TAS 3091Typ - d - y (e.g.: TAS 3091GET-200-Y60 oder TAS 3091HALB-G-200-Y30 oder TAS 3091HALB-D-200)
with Inbus: TAS 3091Typ - d - y - Inbus (e.g.: TAS 3091GET-200-Y60-Inbus e.t.c.)

3091 Half/Split (Heavy-range)

Please note:

All values refer to shrink disk design **HALF!**
Please provide us the dimension of „y“ or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

Applies to shrink disc design HALF-G:

- The required screw length is: Screw length **(3091 Heavy-Range)** - l_1 + 2 a + y (rounded up to standard lengths)

Applies to shrink disc design SPLIT:

- The design consists of **1x HALF-D + 1x HALF-G**
- Delivery is possible with or without screws
- Maximum transmittable torque: $\mathbf{M_{ges} = 2\ M_{max}}$
- The required screw length: Screw length **(3091 Heavy-Range)** + 2 a + y (rounded up to standard lengths)

											HALF-D only							
d mm	d_W mm	M_{max} Nm	*D* mm	*l* mm	*a* mm	l_1 mm	*A* mm	*B* mm	M_A Nm	*Z* Stk	d_B mm	*S*	*DIN*	*Class*	n_{max} min^{-1}	p_N N/mm^2	*I* kgm^2	*Weight* kg
40	30	440	80	14,5	2	18	62	43	30	4	9	M 8 x 30	933	10.9	7100	249	0,0004100	0,41
44	34	670	85	16	2	19	66	47	30	5	9	M 8 x 30	933	10.9	6700	253	0,0005611	0,49
50	40	960	95	17	2	21,5	73	54	30	7	9	M 8 x 35	933	10.9	6000	233	0,0009796	0,68
55	45	1300	105	17,5	2,5	22	78	59	30	7	9	M 8 x 35	933	10.9	5400	238	0,0014752	0,84
62	50	1600	115	17,5	2,5	22	85	66	30	7	9	M 8 x 35	933	10.9	4900	235	0,0021336	1,0
68	55	1900	120	17,5	2,5	22	92	72	30	8	9	M 8 x 35	933	10.9	4700	244	0,0023780	1,0
75	60	2900	145	22	4	27	105	84	59	7	11	M 10 x 40	933	10.9	4100	257	0,0052422	1,7
80	65	3300	145	22	4	27	105	84	59	7	11	M 10 x 40	933	10.9	3900	241	0,0061706	1,8
90	70	3800	160	25	4	30	116	94	59	8	11	M 10 x 40	933	10.9	3500	220	0,0101100	2,4
100	75	4900	170	27	4	32	126	104	59	10	11	M 10 x 45	931	10.9	3300	225	0,0131288	2,7
110	80	6000	185	30	5	35	138	114	59	12	11	M 10 x 45	931	10.9	3000	216	0,0208462	3,6
120	85	7100	210	32,5	5	37,5	155	125	100	10	13,5	M 12 x 50	931	10.9	2700	219	0,0372938	5,1
125	90	7800	215	32,5	5	37,5	160	129	100	10	13,5	M 12 x 50	931	10.9	2600	210	0,0409756	5,3
140	100	10500	230	35	5	42	175	144	100	12	13,5	M 12 x 55	931	10.9	2400	207	0,0598125	6,6
155	110	14700	265	38	5	45	198	164	100	15	13,5	M 12 x 60	931	10.9	2100	212	0,1178125	10
165	120	24000	290	41	5	49	210	174	250	10	17,5	M 16 x 70	931	10.9	1900	251	0,1809031	13
175	130	26500	300	41	5	49	220	184	250	10	17,5	M 16 x 70	931	10.9	1900	237	0,2110938	14
185	140	41700	330	51	5	61	236	194	250	14	17,5	M 16 x 80	931	10.9	1700	245	0,4114844	23
200	150	47700	350	51	5	61	246	204	250	15	17,5	M 16 x 80	931	10.9	1600	243	0,5078125	25
220	165	69300	370	65	8	75	270	224	250	20	17,5	M 16 x 90	931	10.9	1500	238	0,7643625	33
240	180	90100	405	68	8	80	295	244	490	15	22	M 20 x 100	931	10.9	1400	243	1,1912	43
260	200	123000	430	76	8	88	321	265	490	18	22	M 20 x 110	931	10.9	1300	238	1,6412	52
280	220	165000	460	84	10	96	346	285	490	21	22	M 20 x 120	931	10.9	1200	237	2,3200	64
300	240	194000	485	86	10	98	364	305	490	22	22	M 20 x 120	931	10.9	1100	225	2,9270	72
320	250	214000	520	90	10	102	386	325	490	24	22	M 20 x 130	931	10.9	1100	219	3,9610	85
340	260	273000	570	98	10	110	420	345	840	21	26	M 24 x 140	931	10.9	1000	236	6,5524	119
350	280	313000	580	98	10	110	425	355	840	21	26	M 24 x 140	931	10.9	980	229	6,9409	121
360	290	343000	590	100	10	112	432	365	840	22	26	M 24 x 140	931	10.9	970	228	7,4044	124
380	305	345000	645	103	13	115	458	387	840	22	26	M 24 x 140	931	10.9	880	216	10,79	154
390	310	394000	660	107	13	119	468	397	840	24	26	M 24 x 150	931	10.9	860	220	12,34	168

3091 Half/Split (Heavy-Range)

											HALF-D only							
d mm	d_W mm	M_{max} Nm	*D* mm	*l* mm	*a* mm	l_1 mm	*A* mm	*B* mm	M_A Nm	*Z* Stk	d_B mm	*S*	*DIN*	*Class*	n_{max} min^{-1}	p_N N/mm^2	*I* kgm^2	*Weight* kg
400	320	408000	680	107	13	119	480	407	840	24	26	M 24 x 150	931	10.9	840	214	13,93	179
420	340	555000	690	120	13	132	504	427	840	30	26	M 24 x 160	931	10.9	830	224	16,72	205
440	350	586000	750	125	13	139	527	448	1250	24	30	M 27 x 170	931	10.9	760	215	24,76	262
460	370	741000	770	125	13	139	547	468	1250	28	30	M 27 x 170	931	10.9	740	240	27,25	271
480	390	847000	800	138	15	152	580	488	1250	30	30	M 27 x 180	931	10.9	710	224	35,25	324
500	410	955000	850	138	15	152	600	508	1250	32	30	M 27 x 180	931	10.9	670	229	45,34	373
530	440	1103000	910	152,5	15	166,5	630	538	1250	34	30	M 27 x 200	931	10.9	630	206	65,15	470
660	540	2058000	1070	170	15	185	780	670	2800	30	39	M 36 x 240	931	10.9	530	224	132	666

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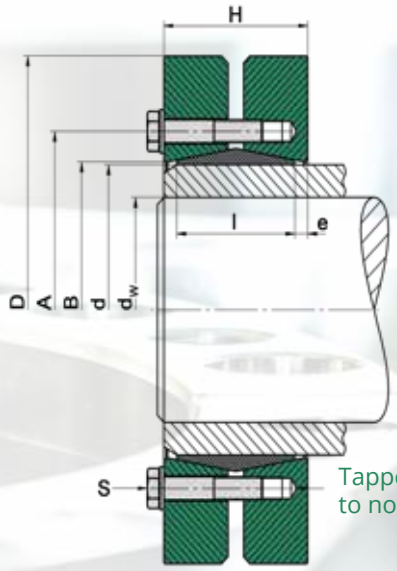
3093 Heavy-Range (strengthened)



Tapped through holes up to nominal diameter 140

Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

Dimensions H & e in unlocked position

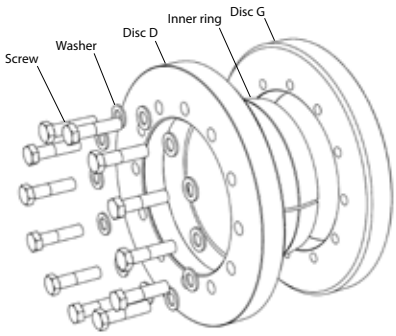
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
40	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	440	-20	10
440	600	-30	10

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)



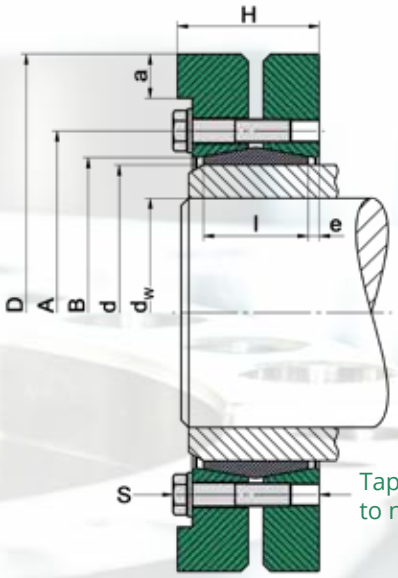
min. yield strength Rp0,2	N/mm^2
Solid shaft	350
Hub	450

Ordering information: **TAS 3093 - d** (e.g.: TAS 3093-200 ... further sizes on request)
with Inbus: TAS 3093 - d - Inbus (e.g.: TAS 3093-200-Inbus)

3093 Heavy-Range (strengthened)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
40	30	1000	80	25	3,5	32	62	43	35	4	M 8 x 30	933	12.9	7100	291	0,0008300	0,83
44	34	1600	85	28	3	34	66	47	35	5	M 8 x 30	933	12.9	6700	295	0,0011451	1,0
55	45	3500	105	30	4,5	39	78	59	35	7	M 8 x 35	933	12.9	5400	309	0,0029856	1,7
62	50	3800	115	30	4,5	39	85	66	35	7	M 8 x 35	933	12.9	4900	274	0,0042672	2,0
68	55	4700	120	30	4,5	39	92	72	35	8	M 8 x 35	933	12.9	4700	285	0,0049938	2,1
75	60	7200	145	36	5	46	105	84	69	7	M 10 x 40	933	12.9	4100	300	0,0101760	3,3
80	65	8000	145	36	5	46	105	84	69	7	M 10 x 40	933	12.9	3900	282	0,0123412	3,6
90	70	9100	160	40	5	50	116	94	69	8	M 10 x 40	933	12.9	3500	258	0,0202200	4,8
100	75	11800	170	44	5	54	126	104	69	10	M 10 x 45	931	12.9	3300	263	0,0262575	5,4
110	80	14500	185	50	5	60	138	114	69	12	M 10 x 45	931	12.9	3000	253	0,0411134	7,1
120	85	17500	210	55	5	65	155	125	120	10	M 12 x 50	931	12.9	2700	257	0,0731250	10
125	90	19000	215	55	5	65	160	129	120	10	M 12 x 50	931	12.9	2600	246	0,0850438	11
140	100	25600	230	60	7	74	175	144	120	12	M 12 x 55	931	12.9	2400	242	0,1178125	13
155	110	35800	265	66	7	80	198	164	120	15	M 12 x 60	931	12.9	2100	248	0,2356250	20
165	120	57800	290	72	8	88	210	174	290	10	M 16 x 65	931	12.9	1900	295	0,3757219	27
175	130	63800	300	72	8	88	220	184	290	10	M 16 x 65	931	12.9	1900	278	0,4221875	28
185	140	99900	330	92	10	112	236	194	290	14	M 16 x 80	931	12.9	1700	288	0,8229688	46
200	150	114000	350	92	10	112	246	204	290	15	M 16 x 80	931	12.9	1600	285	1,0359	51
220	165	166000	370	114	10	134	270	224	290	20	M 16 x 90	931	12.9	1500	279	1,5287	66
240	180	213000	405	120	12	144	295	244	570	15	M 20 x 100	931	12.9	1400	284	2,3548	85
260	200	294000	430	136	12	160	321	265	570	18	M 20 x 110	931	12.9	1300	277	3,2825	104
280	220	390000	460	148	12	172	346	285	570	21	M 20 x 120	931	12.9	1200	276	4,6400	128
300	240	458000	485	152	12	176	364	305	570	22	M 20 x 120	931	12.9	1100	263	5,8100	143
320	250	506000	520	160	12	184	386	325	570	24	M 20 x 130	931	12.9	1100	255	7,9200	170
340	260	648000	570	176	12	200	420	345	980	21	M 24 x 130	931	12.9	1000	276	13,10	238
350	280	741000	580	176	12	200	425	355	980	21	M 24 x 130	931	12.9	980	268	13,94	243
360	290	812000	590	180	12	204	432	365	980	22	M 24 x 140	931	12.9	970	267	14,81	248
380	305	850000	645	180	12	204	458	387	980	22	M 24 x 140	931	12.9	880	253	21,65	309
390	310	934000	660	188	12	212	468	397	980	24	M 24 x 140	931	12.9	860	257	24,68	336
420	340	1312000	690	214	12	238	504	427	980	30	M 24 x 150	931	12.9	830	262	33,52	411
440	350	1388000	750	224	14	252	527	448	1450	24	M 27 x 170	931	12.9	760	251	49,52	524
460	370	1752000	770	224	14	252	547	468	1450	28	M 27 x 170	931	12.9	740	280	54,40	541
480	390	2001000	800	246	14	274	580	488	1450	30	M 27 x 180	931	12.9	710	262	70,39	647
500	410	2256000	850	246	14	274	600	508	1450	32	M 27 x 180	931	12.9	670	268	90,81	747
530	440	2607000	910	275	14	303	630	538	1450	34	M 27 x 200	931	12.9	630	241	130	939
660	540	4897000	1070	310	15	340	780	670	3300	30	M 36 x 240	931	12.9	530	264	263	1331

Typ 52 Shrink Discs matching Stiebel – helical-bevel gears



Tapped through holes up to nominal diameter 200

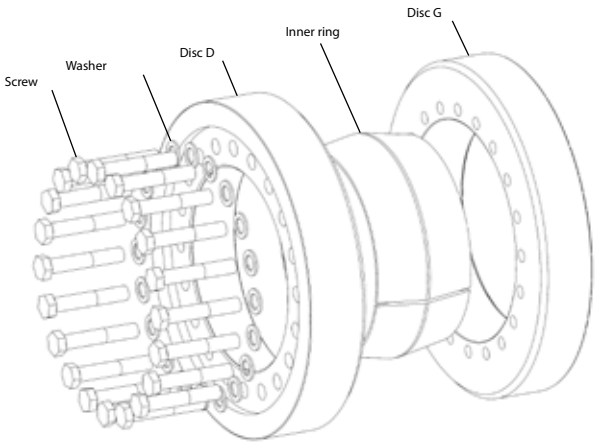
Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Average pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the disc

d < 115	Discs galvanized without washers
d ≥ 115	Discs painted with washers

Dimensions H & e in unlocked position



min. yield strength Rp0,2	N/mm^2
Solid shaft	290
Hub	350

Order information: TAS Typ (z.B.: TAS 5226 ... further sizes on request)

Typ 52 Shrink Discs matching Stiebel – helical-bevel gears

Typ	d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	a mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
5206	50	40	1200	90	22	2,75	31,5	2	70	53	12	8	M 6 x 25	931	10.9	6300	217	0,0010600	0,8
5208	62	50	2100	110	23	4,25	35,5	3	86	66	12	10	M 6 x 25	931	10.9	5200	210	0,0025909	1,3
5210	75	60	3600	138	25	3,75	38	8	100	79	30	7	M 8 x 30	931	10.9	4100	233	0,0070923	2,3
5212	88	70	6300	155	30	4,5	44,5	9,5	114	94	30	10	M 8 x 35	931	10.9	3600	236	0,0135018	3,4
5214	90	75	7300	155	30	4,5	44,5	9,5	114	94	30	10	M 8 x 35	931	10.9	3600	231	0,0132516	3,3
5216	110	85	10000	185	39	5,5	57	9,5	136	114	59	9	M 10 x 40	931	10.9	3000	208	0,0347437	6,0
5218	138	100	18300	230	46	7,25	68,5	10	175	146	100	10	M 12 x 45	931	10.9	2400	228	0,0989230	11
5220	155	120	30000	265	50	7,25	72,5	19	192	165	100	12	M 12 x 50	931	10.9	2100	224	0,1885000	16
5222	165	120	38700	290	56	7,5	81	20	210	175	250	8	M 16 x 55	931	10.9	1900	258	0,3061438	22
5224	175	135	58400	300	72	8	98	20	220	184	250	10	M 16 x 65	931	10.9	1900	237	0,4221875	28
5226	200	150	95400	350	92	10	122	30	246	204	250	15	M 16 x 80	931	10.9	1600	243	1,0359	51
5228	220	170	149000	370	114	10	144	27,5	270	224	250	20	M 16 x 90	931	10.9	1500	238	1,5287	66

TAS SCHÄFER

Flange Coupling

Connecting flange, rigid connection

Description of function FK

Rigid flange coupling with three-parted shrink disc of the type TAS 30..

The main function of the rigid flange coupling (FK) is the safe and backlash-free connection of two shafts by means of friction. For example, between a drive shaft and an agitator shaft. Flange couplings are directly separable at the flanges. The used shrink discs generate a backlash-free connection by pressing the flange-hubs onto the shafts. This connection is mainly used to transmit torque.

The shrink discs do not transmit any forces and/or moments between the shafts and hubs, they just provide the necessary forces. They are not in the flow of forces.

It is installed by sliding the flanges onto the shaft ends and subsequent tightening of the shrink disc. Thereafter the flanges are connected by bolting.

The rigid flange couplings are supplied ready for installation.

To achieve proper operation and a sufficiently high coefficient of friction, the contact surfaces between the shaft extensions and flange-hubs, as well as the contact surfaces of the flanges, must be free of grease, dry and clean. The functional surfaces of the shrink disc, threads and head rests of the screws are provided at the factory with lubricant. The contact surfaces between the flange-hubs and shrink discs are oiled.

A detailed installation manual is available on the Internet.

Product data

Data sheets

- Contact us if a data sheet for an individual product is required.

For CAD data of flange couplings, contact us directly, please.

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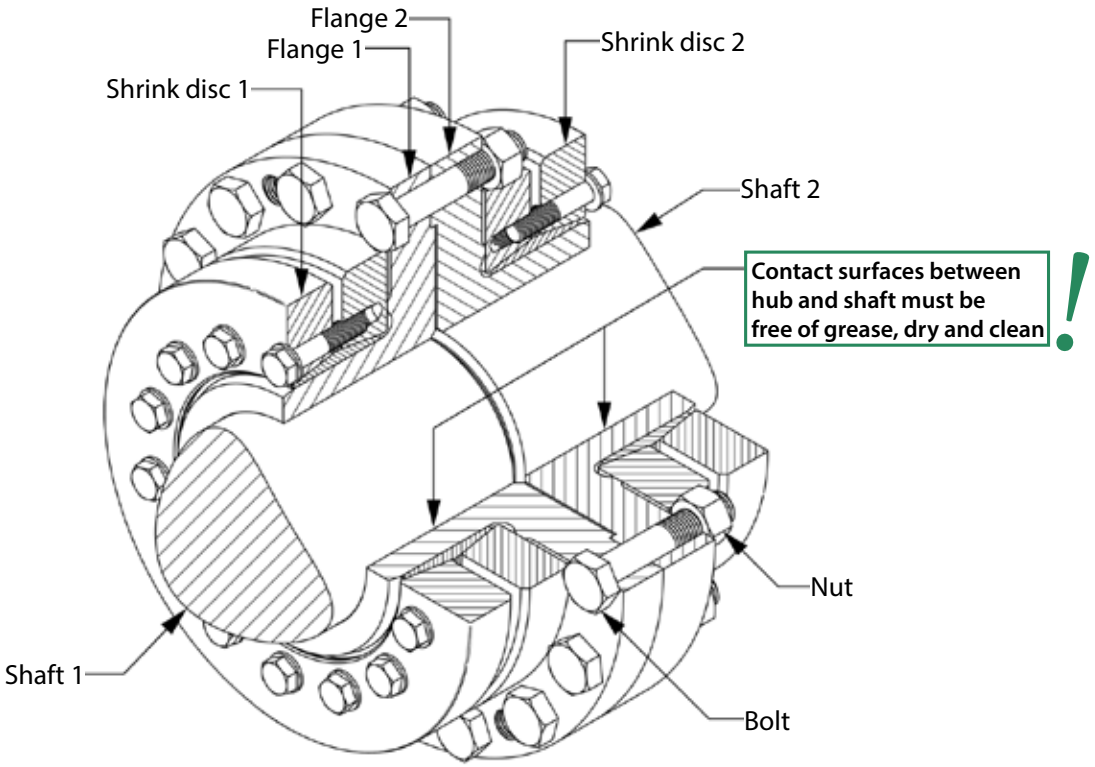


Basics - Calculation FK

Advantages and differences to other systems

- **Use of shrink discs / flow of forces**

  Due to the use of shrink discs, the forces and moments are transferred directly between the shaft and flange. In comparison with internal clamping systems the achievable runout accuracy is higher.

- **Pursue the same diameter - but an adaptation to different diameters is also possible**

  Basically the target should be to connect shaft ends of the same size. With larger deviations the flange-hubs can be adapted for the different diameters. This is done by using different shrink discs.

- **Tightening torque of the clamping screws**

  When using different shrink discs and shaft diameters, the tightening torque and therefore the clamping forces of the shrink discs are adjustable. For example, this is also possible with soft shaft materials and reduces, if required, the stresses in the components.

- **Positioning**

  The cylindrical connection, as well as the used clearance, allows an easy and precise positioning of the flanges on the shaft ends. During the clamping process there is no more shift.

- **Short length (B version)**

  The design „B“, with clamping the shrink discs through the flange face, provides a very short mounting length, as there is no extra space needed behind the coupling.

- **No hydraulic necessary**

  A hydraulic expansion of the hubs is not necessary for mounting.

- **No heating necessary**

  There is no need for expansion of the hubs by heating. To increase the clearance between the shaft and flange, a slight warming is possible.

- **Shafts with keyways**

  The couplings can be used on shafts with keyways. As far as possible, the keyways should be closed.

- **Tolerances and surfaces**

  The values found in the product data, are based on surface quality and tolerances, according to the table below. These values are given as recommendations.

  Higher values for the surface roughness reduce the transmissible torque and promote unwanted settling.

  Larger clearance also reduces the transmissible torque and increases stresses in the flange-hub.

If you have different shaft tolerances, please let us know.
Then we can adjust the bores in the flanges accordingly!

Recommended tolerances and surface roughness

>	≤	FS_{max} mm	Clearance Hub / Shaft	Rz µm
9	18	0,022	H6/h6	10
18	30	0,026	H6/h6	10
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25
630	800	0,154	H7/g6	25
800	1000	0,172	H7/g6	25

Basics - Calculation FK

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Distinction flange connection / shrink disc

Due to the design, the transmissible forces and torque, are to look separately for the shrink disc and the flange. While the shrink disk provides clamping forces only, the transmissible forces and torque must accommodated by the flange. This results in different values for shrink connection and flange.

Transmissible torque at the shrink disc

A shrink disc connection is capable of transmitting torque, bending moment and axial force. Substituted, the transmissible torque M_{max} is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment M_{res}.
The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

At different load cases, they must be individually checked against M_{max} !

M_{res} is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}3\, M_T$
as the limit * for the bending moment

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,3 MT is due to the change of the surface pressure at the edges of the connection.
(This information applies to the shrink connection only!)

This results in the following relationships:

Nur Drehmoment:
The maximum torque is equivalent to M_{max} .

Nur Biegemoment:
The maximum static bending moment corresponds to 0,4 M_T .

Axial force only :

The maximum axial force is $M_{max} \frac{2}{d_W}$

In addition, the load on the flange bolting connection must be taken into account

Transmissible forces and torque at the flange connection
The bolt connection of the flanges is also based on friction. The torque is transmitted via this connection. Whereas the torque capacity usually corresponds to, or is higher than that of the shrink connection it is any transmissible bending moment which must be particulary considered.

Bending influences the bolt connections and the flange itself. The static load case usually corresponds to the transmissible bending moment of the shrink connection, the bending moment capacity is however lower in the dynamic load and will be determined for each individual case by us (refer to the Product questionnaire).

The same applies to axial loads, as they are transmitted directly by the bolt connection of the flanges.

Static and dynamic load

For some applications, a static review of the coupling is sufficient. The clamping forces of the shrink connection are static. Non cyclic torques and/or axial forces can also be considered as static loads. Rotating bending has to be considered as a dynamic load and the coupling must be calculated accordingly. Therefore it is also essential to specify the actual occurring load cases.

Shaft and hub calculation

The flange-hub will be deformed due to the applied clamping force. Shaft stiffness and surface finish should be considered in addition to the clearance between shaft and hub. Stiffness can be ignored for solid shafts, but for hollow shafts (see „Bore in the shaft (hollow shaft)“) there is higher deformation and thus higher stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. A discussion and analysis of results is not made here because only a very limited range of static applications could be covered. Various calculation methods for different cases can be found in engineering literature or using specialised software. Often only a calculation via FEA will give reliable results for complex geometry

Notch effect

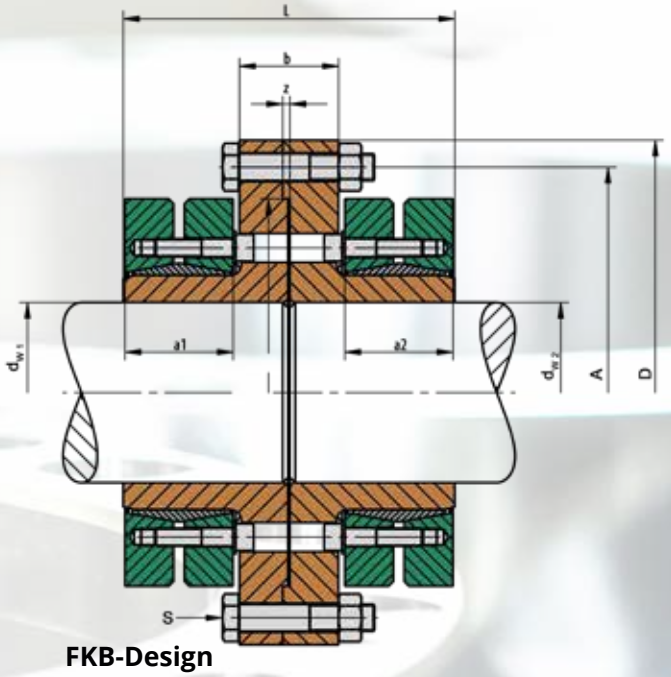
Generally there is a notch effect on the components caused by the radial pressure of the pressure ring. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because the pressure ring is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

Some standards provide the possibility for a notch factor to be determined by a fit pairing (interference fit) for a shrink-connection. A similar method can also be used for such shrink connections. To this end an oversize can be calculated from the applied surface pressures. As a result a matching fit pair can be determine and thus a resultant notch factor found.

Bore in the shaft (hollow shaft)

A large bore d_B in the shaft or the use of a hollow shaft, reduces the stiffness of the shaft against radial pressure. This leads to a decrease in pressure p_W , a reduced transmissible torque M, a contraction Δd_B within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 d_W .

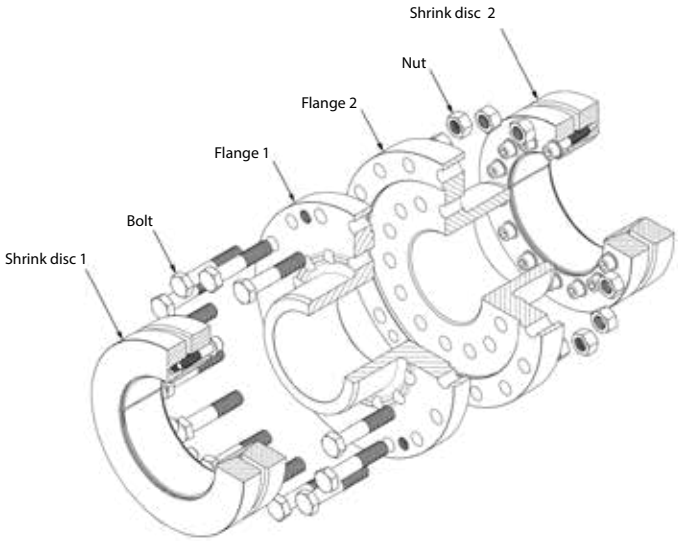
Rigid Flange Coupling FK/FKB



FKB-Design

Used symbols

FK		Nominal size
d_{W1} & d_{W2}	[mm]	Shaft diameters
$M_{t\,max}$	[Nm]	Maximal transmittable torque (depends on used shrink disc and d_W)
A	[mm]	Pitch circle diameter
D	[mm]	Outer diameter
D_z	[mm]	Diameter of the flange centering
L	[mm]	Width of the flange coupling
a	[mm]	Width of the shrink disc
b	[mm]	Thickness of flange
z	[mm]	Depth of the centering
I	[kgm²]	Moment of inertia
		Bolts
Z		Number
S		Size
M_A	[Nm]	Required tightening torque



Rigid Flange Coupling FK/FKB

FK	d_W	$M_{t\,max}$	Shrink disc		Dimensions							Flange bolts			I	Weight
			Type	M_A	A	D	D_z	L	a	b	z	Z	S	M_A		
	mm	Nm	3071-*d*	Nm	mm	mm	mm	mm	mm	mm	mm	Stk		Nm	kgm²	kg
75	75	7300	100	30	210	240	170	136	44	44	4	6	M 16 x 70	210	0,165499	26
90	90	13100	125	59	265	305	215	160	54	48	5	6	M 20 x 80	420	0,487699	48
100	100	17900	140	100	286	340	230	190	64	56	5	5	M 24 x 90	720	0,829143	63
120	120	38700	165	250	356	400	300	228	75	72	5	8	M 24 x 110	720	2,126131	120
130	130	42600	175	250	356	400	300	228	75	72	5	8	M 24 x 110	720	2,246611	120
150	150	79500	195	250	420	475	350	278	90	90	6	10	M 30 x 130	1450	5,408399	215
165	165	103000	220	250	440	510	370	314	108	90	6	14	M 30 x 130	1450	7,692146	270
180	180	144000	240	490	475	540	405	322	113	88	6	16	M 30 x 130	1450	10,247074	310
200	200	193000	[1] 260	490	500	560	430	368	125	110	8	16	M 30 x 150	1450	14,889123	395
220	220	251000	280	490	530	590	460	392	139	104	8	18	M 30 x 150	1450	18,392262	445
240	240	318000	300	490	555	615	485	408	147	104	8	20	M 30 x 150	1450	22,627586	500
260	260	435000	340	490	640	710	570	450	161	118	8	24	M 30 x 160	1450	45,880687	780
290	290	519000	360	490	660	720	590	450	167	106	8	24	M 30 x 150	1450	76,117692	790
310	310	697000	390	840	735	805	660	484	180	114	8	28	M 30 x 160	1450	81,558246	1060
340	340	891000	420	840	770	835	690	530	198	122	10	30	M 30 x 160	1450	102,442438	1230
380	380	1198000	460	840	845	920	770	556	208	128	10	35	M 30 x 170	1450	166,038502	1420
410	410	1431000	500	1250	940	1030	850	618	225	156	12	32	M 36 x 200	2400	283,051874	2200
440	440	1961000	530	1250	1000	1100	900	696	258	160	14	36	M 36 x 200	2400	382,170457	2680
470	470	2397000	590	1250	1080	1180	980	744	280	164	14	40	M 36 x 200	2400	553,092493	3340
500	500	2742000	620	1250	1110	1210	1020	744	280	164	14	42	M 36 x 200	2400	638,288490	3620

[1] **3071.4**

How to order (product identification)

T	A	S		F	K	B	S	-	0	9	0	/	1	0	0	/	1	0	0	-	0	0	0	1

Type

optional - design „B“

optional - brake disc

nominal size of the flange coupling FK

Shaft diameter at flange T1 d_{W1}

Shaft diameter at flange T2 d_{W2} (not applicable for half FK)

Item number (if known)

Includes reference to:
Type of shrink discs
Size of shrink discs
Toleranced dimensions
Tightening torques

Examples:

TAS FK-090/085/095	Flange coupling in nominal size FK = 090 / d_{W1} = Ø85 / d_{W2} = Ø95
TAS FKB-090/085/095	Flange coupling design „B“ in nominal size FK = 090 / d_{W1} = Ø85 / d_{W2} = Ø95
TAS FKS-090/085/095	Flange coupling with brake disc in nominal size FK = 090 / d_{W1} = Ø85 / d_{W2} = Ø95
TAS FKBS-090/085/095	Flange coupling design „B“ with brake disc in nominal size FK = 090 / d_{W1} = Ø85 / d_{W2} = Ø95

Description of function FKE

Rigid flange coupling with pressure ring

The main function of the rigid flange coupling (FKE) is the safe and backlash-free connection of two shafts by means of friction. For example, between a drive shaft and an agitator shaft. Flange couplings are directly separable at the flanges. The pressure ring generates a backlash-free connection by pressing the flange-hub onto the shaft. This connection is mainly used to transmit torque. It can also transmit axial forces and bending moments.

The shrink connection itself does not transmit any forces and/or moments between the shaft and hub, it just provides the necessary forces between the two. The shrink connection is not part of the flow of forces.

Installation is by sliding the flanges onto the shaft ends and subsequently tightening of the pressure ring. Thereafter the flanges are connected by a second series of bolts.

The rigid flange couplings are supplied ready for installation. The clamping is achieved manually by means of a torque wrench. Optionally a hydraulic clamping tool can be used.

To achieve proper operation and a sufficiently high coefficient of friction, the contact surfaces between the shaft extension and flange-hub, as well as the contact surfaces of the flange, must be free of grease, dry and clean. The functional surfaces of the cones, threads and head seats of the bolts are supplied at the factory lubricated.

A detailed installation manual is available on the Internet. (www.tas-schaefer.de)

Product data

Data sheets

- Contact us if a data sheet for an individual product is required.

Contact us for CAD data of flange couplings. These are provieded upon request.

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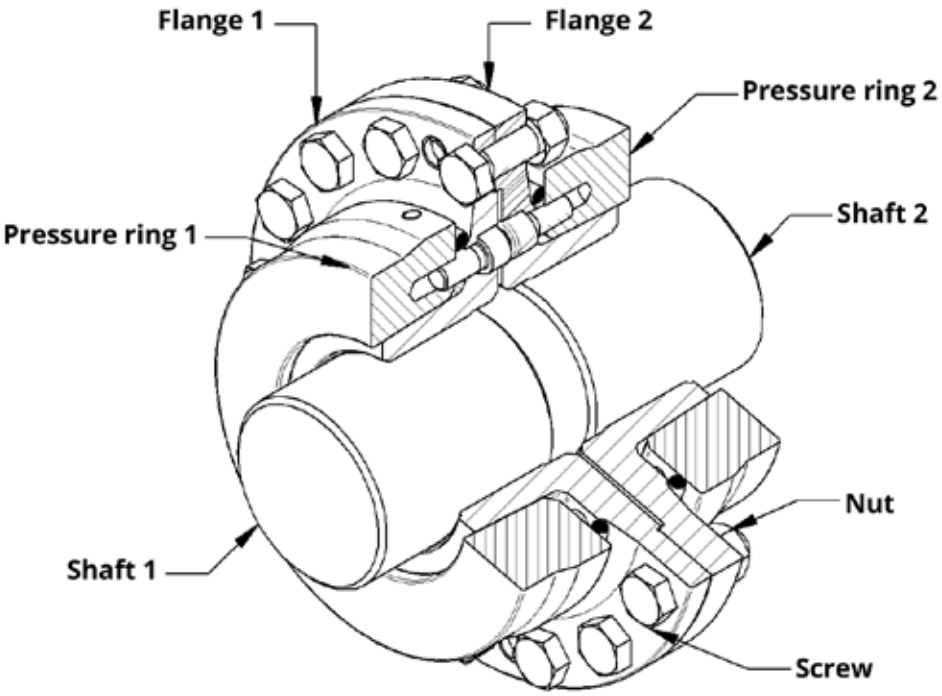


Basics - Design FKE

Advantages and differences compared to other systems

- **Use of pressure rings / flow of forces**

  Forces and moments are transferred directly between the shaft and flange due to the use of the pressure ring. The achievable runout accuracy is higher comparisoned to internal clamping systems.

  Similar shaft diameters preferred - but an adaptation to different diameters is also possible

  Basically, the goal should be to connect shaft ends of the similar size. Flange hubs can however be adapted to larger shaft diameter differences. This is done by using different pressure rings and adapting the flanges.

- **Tightening torque of the clamping screws**

  The tightening torque and therefore the clamping forces can be adjusted when using different pressure rings and shaft diameters. As an example, it is also possible to use soft shaft materials reducing the stresses in the components.

- **Positioning**

  The cylindrical shaft connection and the clearance fit allow for an easy and precise positioning of the flanges on the shaft ends. During the clamping process there is no shifting of the shaft.

Short length

The clamping of the pressure ring through the flange face provides a design with a very short mounting length, as no extra space is needed behind the coupling.

- **No hydraulic necessary**

  Hydraulic expansion of the hubs is not necessary for mounting.

- **No heating necessary**

  There is no need for expansion of the hubs by heating. A slight warming of the hub is possible to increase the clearance between the shaft and flange.

- **Shafts with keyways**

  The couplings can be used on shafts with keyways. As far as possible, the keyways should be closed.

Tolerances and surfaces

The values found in the product datasheet, are based on specific surface qualites and tolerances according to the table below. These values are given as recommendations.

Higher surface roughness reduces the transmissible torque and can lead to unwanted settling.

Larger clearance also reduces the transmissible torque and increases stresses in the flange-hub.

Please advice if different shaft tolerances are required. The bore tolerances can then be adjusted accordingly!

Recommended tolerances and surface roughness

>	≤	FS_{max} mm	Clearance Hub / Shaft	Rz µm
9	18	0,022	H6/h6	10
18	30	0,026	H6/h6	10
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25
630	800	0,154	H7/g6	25
800	1000	0,172	H7/g6	25

Basics - Calculation FKE

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Distinction between flange connection & pressure ring

The transmissible forces and torque are considered separately for the pressure ring and the flange due to the coupling design. While the pressure ring provides clamping forces only, the transmissible forces and torque must be accommodated by the flange. This results in different values for the shrink connection and the flange.

Transmissible torque

A shrink connection is capable of transmitting torque, bending moment and axial force. The transmissible torque M_{max} is specified in the product data as a sole parameter. If additional loads occur simultaneously then they must be added vectorially to the resultant moment Mres. The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

Each different load case must be individually checked against Mmax !

Mres is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}4\, M_T$
as the limit for the static bending moment*

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation of 0,4 MT is due to the change of the surface pressure at the edges of the connection. (This information applies to the shrink connection of the coupling only!)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max} .

Bending moment only:
The maximum static bending moment corresponds to 0,4 M_T .

Axial force only:
The maximum axial force is $M_{max} \frac{2}{d_W}$.

In addition, the load on the flange bolting connection must be taken into account

Transmissible forces and torque at the flange connection

The bolt connection of the flanges is also based on friction. The torque is transmitted via this connection. Whereas the torque capacity usually corresponds to, or is higher than that of the shrink connection it is any transmissible bending moment which must be particulary considered.

Bending influences the bolt connections and the flange itself. The static load case usually corresponds to the transmissible bending moment of the shrink connection, the bending moment capacity is however lower in the dynamic load and will be determined for each individual case by us (refer to the Product questionnaire).

The same applies to axial loads, as they are transmitted directly by the bolt connection of the flanges.

Static and dynamic load

For some applications, a static review of the coupling is sufficient. The clamping forces of the shrink connection are static. Non cyclic torques and/or axial forces can also be considered as static loads. Rotating bending has to be considered as a dynamic load and the coupling must be calculated accordingly. Therefore it is also essential to specify the actual occurring load cases.

Shaft and hub calculation

The flange-hub will be deformed due to the applied clamping force. Shaft stiffness and surface finish should be considered in addition to the clearance between shaft and hub. Stiffness can be ignored for solid shafts, but for hollow shafts (see „Bore in the shaft (hollow shaft)“) there is higher deformation and thus higher stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. A discussion and analysis of results is not made here because only a very limited range of static applications could be covered. Various calculation methods for different cases can be found in engineering literature or using specialised software. Often only a calculation via FEA will give reliable results for complex geometry

Notch effect

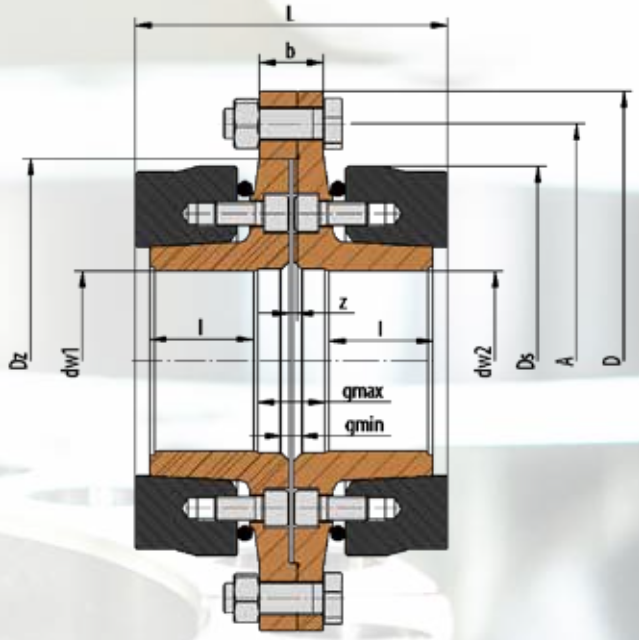
Generally there is a notch effect on the components caused by the radial pressure of the pressure ring. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because the pressure ring is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

Some standards provide the possibility for a notch factor to be determined by a fit pairing (interference fit) for a shrink-connection. A similar method can also be used for such shrink connections. To this end an oversize can be calculated from the applied surface pressures. As a result a matching fit pair can be determine and thus a resultant notch factor found.

Bore in the shaft (hollow shaft)

A large bore d_B in the shaft or the use of a hollow shaft, reduces the stiffness of the shaft against radial pressure. This leads to a decrease in pressure p_W , a reduced transmissible torque M, a contraction Δd_B within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 d_W .

Rigid Flange Coupling FKE

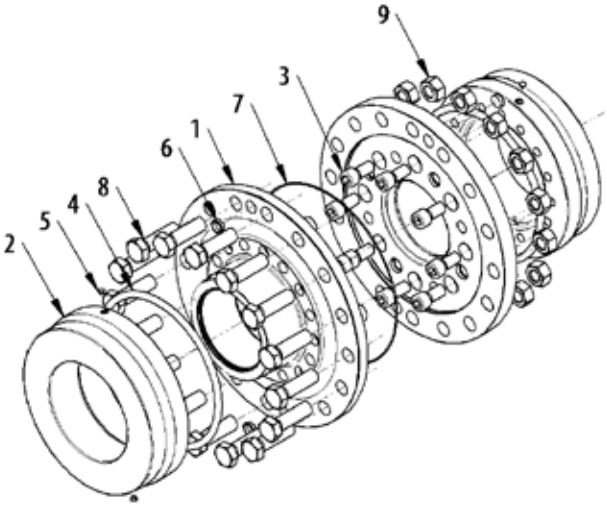


Also available with optional hydraulic clamping tool! (from nominal size 150)

Used symbols

FKE		Nominal size
d_W	[mm]	Shaft diameters
Mt_{max}	[Nm]	Maximum transmittable torque
Mbs_{max}	[Nm]	Maximum transferable bending moment (static)
Mbd_{max}	[Nm]	Maximum transferable bending moment (dynamic)
Ds	[mm]	Outer diameter of pressure ring
Z	[Stk.]	Number of clamping screws
S		Screw size of clamping screws
M_A	[Nm]	Required tightening torque for clamping screws
A	[mm]	Pitch circle diameter of connecting screws
D	[mm]	Outer diameter of the flange coupling
D_z	[mm]	Diameter of the flange recess
L	[mm]	Width of the flange coupling
l	[mm]	Clamping length
g_{min}	[mm]	Minimum shaft distance
g_{max}	[mm]	Maximum shaft distance
b	[mm]	Thickness of flanges
z	[mm]	Depth of the recess
Z_F	[Stk.]	Number of connecting screws
S_F		Screw size of connecting screws
M_{AF}	[mm]	Required tightening torque of connecting screws
n_{max}	[min^{-1}]	Allowed rotation frequency
I	[kgm^2]	Moment of inertia
m	[kg]	Mass of the complete coupling
ph	[bar]	Hydraulic pressure for opt. Clamping tool

Pos.	Designation
1	Flange
2	Pressure ring
3	Clampingscrews
4	Seal
5	Plug
6	Plug
7	O-Ring
8	Connectingscrews
9	Nut

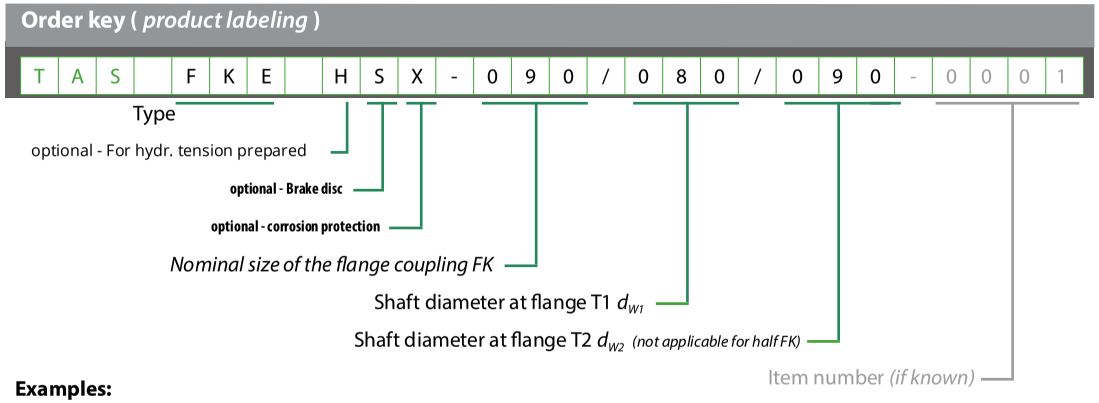


Size FKE (mm)	Shaft dw (mm)	Moment $M t_{max}$ (Nm)	Bend stat. Mbs_{max} (Nm)	Bend dyn. Mbd_{max} (Nm)	Pressure Ring				Details Coupling									Flange Screws			Further Details			Clampingtool
					Ds (mm)	Z (Stk.)	S	M_A (Nm)	A (mm)	D (mm)	Dz (mm)	L (mm)	l (mm)	g_{min} (mm)	g_{max} (mm)	b (mm)	z (mm)	Z_F (Stk.)	S_F	M_{4F} (Nm)	n_{max} (min^{-1})	I* (kgm^2)	m* (kg)	ph (bar)
50	40	1030	412	309	118	6	M8x25	22	170	200	125	111	35	1	27	29	4	6	M 12 x 45	85	3237	0,047	11,5	-
	50	2100	840	630																				
60	50	1900	760	570	134	8	M8x30	21	190	220	145	123	37	1	33	34	4	6	M 16 x 55	210	2851	0,085	16	-
	60	3200	1280	690																				
75	65	4800	1920	1440	158	8	M10x30	40	210	240	170	147	46	1	37	34	4	6	M 16 x 55	210	2418	0,14	22,5	-
	75	7300	2920	2190																				
90	80	9800	3920	2490	200	8	M12x40	75	265	305	215	174	56	2	42	42	5	6	M 20 x 70	420	1910	0,44	44,5	-
	90	13100	5240	3930																				
100	90	13500	5400	4050	214	9	M12x40	80	286	340	230	188	60	2	46	44	5	5	M 24 x 80	720	1785	0,67	56	-
	100	17900	7160	5370																				
120	100	24700	9880	7410	276	8	M16x50	200	356	400	300	220	71	2	52	54	5	8	M 24 x 90	720	1384	1,7	105	-
	120	38700	15480	11610																				
130	110	28700	11480	8610	284	8	M16x50	200	356	400	300	220	71	2	52	54	5	8	M 24 x 90	720	1345	1,75	105	-
	130	42600	17040	12780																				
150	130	57500	23000	17250	320	8	M20x50	400	420	475	350	264	84	2	66	64	6	10	M 30 x 100	1450	1194	4,2	175	235
	150	80000	32000	24000																				
165	135	64000	25600	19200	345	8	M24x50	530	440	510	370	296	100	2	66	64	6	14	M 30 x 100	1450	1107	5,6	205	230
	165	103000	41200	30900																				
180	150	93000	37200	27900	390	8	M24x50	690	475	540	405	312	108	2	66	64	6	16	M 30 x 100	1450	979	8	260	240
	180	144000	57600	43200																				
200	170	129000	51600	38700	415	8	M27x60	800	500	560	430	350	123	2	70	72	8	16	M 30 x 110	1450	920	10,7	315	245
	200	190000	76000	57000																				
220	180	156000	62400	46800	445	8	M27x60	860	530	590	460	372	135	2	70	72	8	18	M 30 x 110	1450	858	14	370	240
	220	250000	100000	75000																				
240	200	205000	82000	61500	467	9	M27x60	870	555	615	485	394	145	2	74	72	8	20	M 30 x 110	1550	818	17,5	420	235
	240	315000	126000	90000																				
260	220	297000	118800	71400	548	9	M33x65	1720	640	710	570	434	153	2	92	86	8	24	M 30 x 130	1550	697	36,5	660	240
	260	435000	174000	130500																				
290	240	336000	134400	100800	560	9	M33x65	1720	660	720	590	444	158	2	92	86	8	24	M 30 x 130	1550	682	39	660	225
	290	519000	207600	155700																				
310	260	462000	184800	138600	615	9	M36x80	2300	735	805	660	482	170	2	102	92	8	28	M 30 x 130	1550	621	63,5	890	240
	310	697000	278800	178000																				

Size FKE (mm)	Shaft dw (mm)	Moment $M t_{max}$ (Nm)	Bend stat. Mbs_{max} (Nm)	Bend dyn. Mbd_{max} (Nm)	Pressure Ring				Details Coupling									Flange Screws			Further Details			Clampingtool
					Ds (mm)	Z (Stk.)	S	M_A (Nm)	A (mm)	D (mm)	Dz (mm)	L (mm)	l (mm)	g_{min} (mm)	g_{max} (mm)	b (mm)	z (mm)	Z_F (Stk.)	S_F	M_{AF} (Nm)	n_{max} (min^{-1})	l* (kgm^2)	m* (kg)	ph (bar)
340	290	600000	240000	180000	644	10	M36x80	2300	770	835	690	530	187	2	112	98	10	30	M 30 x 130	1550	593	80,5	1020	230
	340	862000	344800	220000																				
380	310	757000	302800	227100	700	12	M36x80	2300	845	920	770	554	194	2	122	118	10	35	M 30 x 130	1550	546	118	1250	235
	380	1198000	479200	255000																				
410	350	980000	392000	294000	768	12	M42x110	2700	940	1030	850	616	210	4	144	124	12	32	M 36 x 180	2500	497	206	1730	240
	410	1430000	572000	340000																				
440	380	1410000	564000	423000	828	14	M42x110	3000	1000	1100	900	694	245	4	154	128	14	36	M 36 x 180	2500	461	302	2250	240
	440	1960000	784000	460000																				
470	410	1680000	672000	504000	900	16	M42x110	3050	1080	1180	980	742	267	4	154	130	14	40	M 36 x 180	2500	424	439	2860	235
	470	2300000	920000	690000																				
500	440	1860000	744000	558000	935	16	M42x110	3100	1110	1210	1020	742	267	4	154	130	14	42	M 36 x 180	2500	409	496	3000	235
	500	2500000	1000000	750000																				

* related to nominal size

Order key (*product labeling*)



Examples:

TAS FKE-090/085/095	Flange coupling in nominal size FKE = 090 / dW1 = Ø85 / dW2 = Ø95
TAS FKE H-090/085/095	Flange coupling with preparation for hydraulic clamping tool in nominal size FKE = 090 / dW1 = Ø85 / dW2 = Ø95
TAS FKE S-090/085/095	Flange coupling with brake disc in nominal size FKE = 090 / dW1 = Ø85 / dW2 = Ø95
TAS FKE X-090/085/095	Flange coupling with extended corrosive protection in nominal size FKE = 090 / dW1 = Ø85 / dW2 = Ø95
TAS FKE HX-090/085/095	Flange coupling with preparation for hydraulic clamping tool with extended corrosive protection in nominal size FKE = 090 / dW1 = Ø85 / dW2 = Ø95

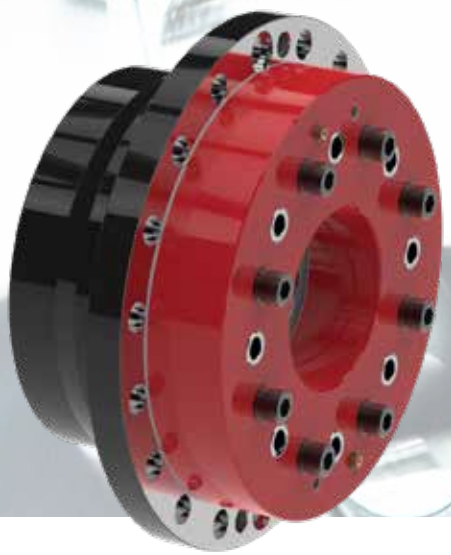
Additional options can be combined as required

Hydraulic clamping tool TAS HY for FKE H

Short description:

The clamping tool is placed onto the front of one coupling half and is used to clamp the pressure ring of the coupling.

The tool is removed After locking the coupling half, and can be used for further couplings of the same nominal size.

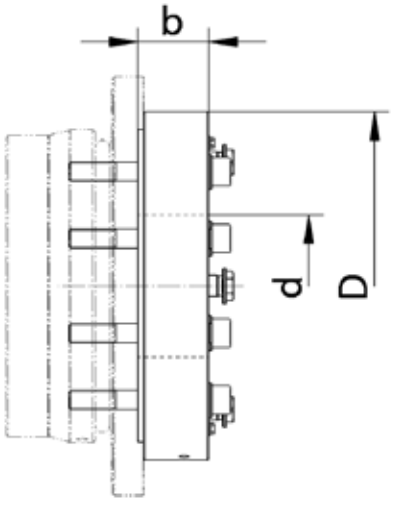


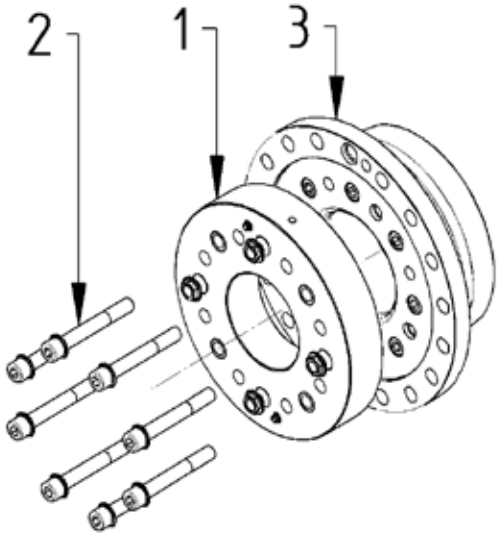
Used symbols

Typ HY		Nominal size
z	[pcs.]	Number of screws at the hydraulic tool
D	[mm]	Outer diameter of the hydraulic tool
d	[mm]	Inner diameter of the hydraulic tool
b	[mm]	Width of the hydraulic tool without screws
m	[kg]	Weight
v	[l]	Oil volume

Oil type: HLP-46

Pos.	Designation
1	Tool HY
2	Main Screws
3	Flange half FKE H



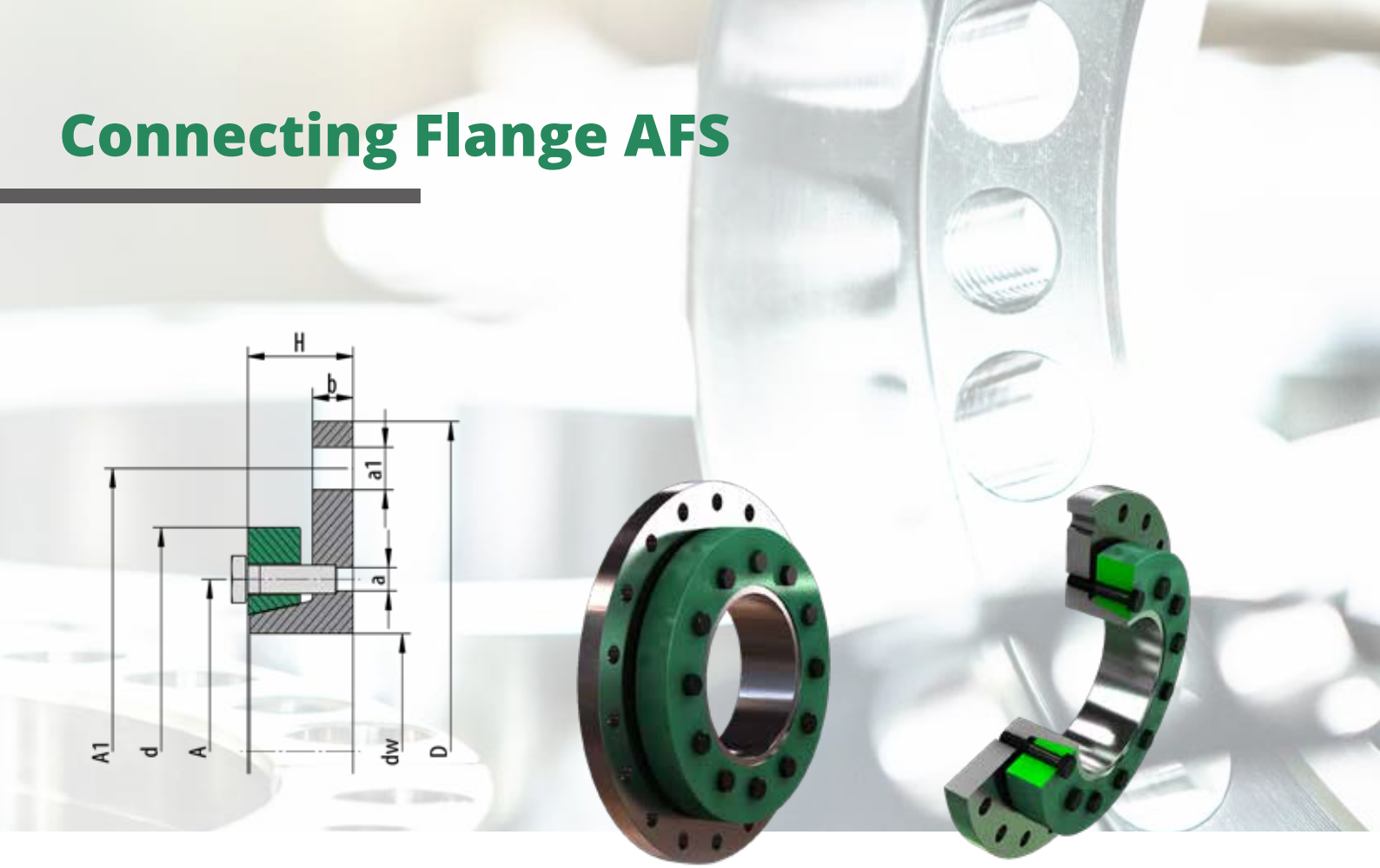


Hydraulic clamping tool TAS HY for FKE H

Typ HY	Nominal Size FKE	Screws		Compatible Pressure Rings				Dimensions			Mass	Oilvolume
Designation		Size	Z (Pcs.)	Pressurering Size	Pressure ph (bar)	Pressurering	Pressure ph (bar)	D (Pcs.)	d (mm)	b (mm)	(kg)	v (l)
HY 150-71-185	**150**	M20x180	8	150-71-185	235	130-51-175	160	370	120	95	70	0,7
HY 165-71-195	**165**	M24x180	8	165-71-195	230	150-51-195	175	400	130	95	80	0,9
HY 180-71-220	**180**	M24x180	8	180-71-220	240	165-51-220	160	440	145	95	100	1,5
HY 200-71-240	**200**	M27x200	8	200-71-240	245	180-51-240	220	470	180	100	110	1,5
HY 220-71-260	**220**	M27x200	8	220-71-260	240	200-51-260	230	490	200	100	120	1,6
HY 240-71-280	**240**	M27x200	9	240-71-280	235	220-51-280	240	520	210	100	140	1,9
HY 260-71-320	**260**	M33x220	9	260-71-320	240	240-51-320	165	630	200	110	240	3,8
HY 290-71-340	**290**	M33x220	9	290-71-340	225	260-51-340	190	650	220	110	260	4,1
HY 310-71-360	**310**	M36x240	9	310-71-360	240	290-51-360	180	695	235	130	340	4,7
HY 340-71-390	**340**	M36x240	10	340-71-390	230	310-51-390	195	740	275	130	380	6,5
HY 380-71-420	**380**	M36x240	12	380-71-420	235	340-51-420	175	805	290	130	450	7,6
HY 410-71-460	**410**	M42x260	12	410-71-460	240	380-51-460	190	875	325	130	530	9,8
HY 440-71-500	**440**	M42x260	14	440-71-500	240	410-51-500	180	955	345	140	680	12,6
HY 470-71-560	**470**	M42x260	16	470-71-560	235	440-51-560	185	1050	390	140	820	15,0
HY 500-71-590	**500**	M42x260	16	500-71-590	235	470-51-590	215	1075	425	140	840	15,4

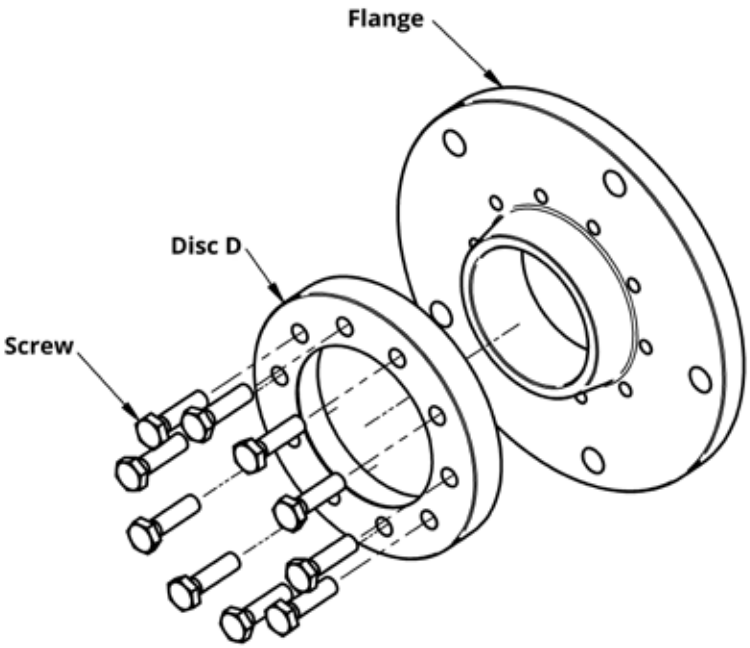
One additional seal kit is included as well as clamping screws and if necessary adapters for pressure rings of the light series 51.

Connecting Flange AFS



Used Symbols

dW	[mm]	Shaft diameter
D	[mm]	Outer diameter of the connecting flange
Mt max	[Nm]	max transmittable torque
H	[mm]	Width of the connecting flange
d	[mm]	Outer diameter disc D
A	[mm]	Pitch circle diameter disc D
A1	[mm]	Pitch circle diameter flange
b	[mm]	Width of the flange
Z		Number of screws disc D
S		Size
MA	[Nm]	Required tightening torque
S/a		Number/ Size bores of the flange



Design of the connecting flange

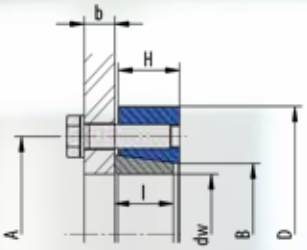
Alternative versions with centering, tapped holes and additional sizes on request.

Example: **AFS-200/470**

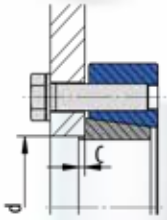
Connecting Flange AFS

d_w mm	D mm	M_t Nm	H mm	d mm	A mm	Z Pcs	S	M_A Nm	A_1 mm	S/a	M_A Nm	b mm	Weight kg
30	**105**	310	23	70	54	6	M6 x 020	12	90	4/6,6	12	34	1,00
35	**110**	450	23	75	59	7	M6 x 020	12	95	5/6,6	12	34	1,1
40	**130**	645	26	85	64	8	M6 x 022	12	110	4/9	30	34	1,3
45	**135**	850	26	90	68	9	M6 x 022	12	115	4/9	30	34	1,4
50	**140**	1100	27	95	73	10	M6 x 025	12	120	5/9	30	34	1,7
55	**150**	1375	27	105	78	11	M6 x 025	12	130	5/9	30	34	1,9
60	**155**	1725	28	110	84	12	M6 x 025	12	135	6/9	30	34	2,0
65	**170**	1940	30	125	95	7	M8 x 030	30	150	7/9	30	34	2,6
70	**180**	2500	30	135	100	8	M8 x 030	30	160	8/9	30	34	3,1
75	**195**	3000	34	140	105	9	M8 x 030	30	170	6/11	59	34	3,6
80	**200**	3650	34	145	110	10	M8 x 030	30	175	7/11	59	34	4,1
85	**210**	4150	37	155	118	11	M8 x 035	30	185	7/11	59	34	4,8
90	**215**	4950	37	160	123	12	M8 x 035	30	190	8/11	59	34	5,4
100	**235**	7350	40	180	138	10	M10 x 040	59	210	10/11	59	34	5,7

AF Series 12



Model A



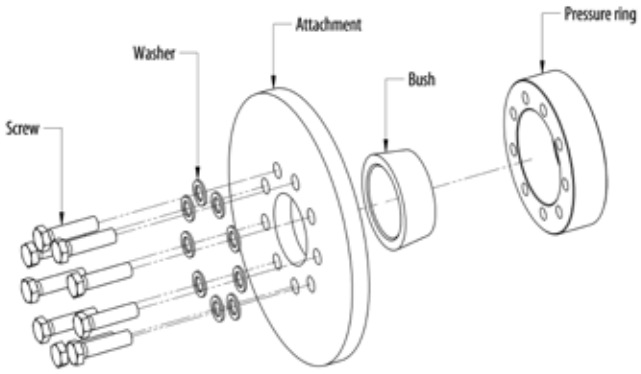
Model AB

Model C

Model BC

Used symbols

Typ		Nominal size
d_W	[mm]	Shaft diameter
$M_{t\,max}$	[Nm]	Max transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
H	[mm]	Width of the external clamping elemei
A	[mm]	Pitch circle diameter
C	[mm]	Length of the centering
d	[mm]	Diameter of the centering
B	[mm]	Attachment size
		Screws
Z		Number of screws
S		Size of screws
M_A	[Nm]	Required tightening torque



Example: **AF-60-12-60 A**

- Model
- Shaft Diameter
- Series
- Nominal Size

Design of the external clamping element

Pressure ring painted
Dimension H in unlocked position

Applies to all types:
b > 1,4 x Screw diameter

From M10 with washers

Details of the fit

Shaft:

up to	d_W 150mm	H7 / h6
from	d_W 155mm	H7 / g6

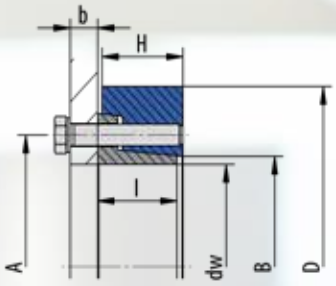
Centring:

up to	d 150mm	H7 / h6
from	d 155mm	H7 / g6

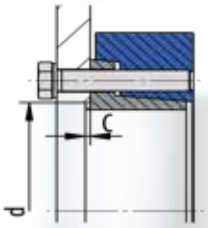
AF Series 12

Type	d_w mm	Mt_{max} Nm	D mm	l mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	11	20												
AF-10	10	20	39	9	10	25	1,5	12	13	3	M6x18	10.9	12	0,1
	9	20												
	13	50												
AF-12	12	50	44	12	13	28	1,5	14	16	3	M6x20	10.9	12	0,1
	11	50												
	16	130												
AF-15	15	130	52	14	15	36	2	18	21	3	M8x25	10.9	29	0,2
	14	130												
	20	200												
AF-20	18	200	60	16	17	42	2	22	25	3	M8x30	10.9	29	0,3
	16	200												
	25	340												
AF-25	22	340	70	18	19	48	2	27	31	5	M8x30	10.9	29	0,4
	20	340												
	30	550												
AF-30	28	550	76	20	21	56	2	32	35	6	M8x35	10.9	29	0,6
	25	550												
	40	1060												
AF-40	35	1060	96	24	25	70	3	43	47	6	M10x35	10.9	58	1,2
	30	1060												
	50	2200												
AF-50	45	1800	112	29	30	84	3	53	58	7	M12x45	10.9	100	2
	40	1000												
	60	3230												
AF-60	55	3230	120	32	34	94	3	63	66	9	M12x50	10.9	100	2,3
	50	2300												
	70	5800												
AF-70	65	5800	148	38	40	112	4	74	79	8	M16x60	10.9	240	4,2
	60	4500												
	80	8640												
AF-80	75	8640	170	42	44	130	4	84	94	9	M16x65	10.9	240	6,1
	70	6900												
	90	12000												
AF-90	85	12000	185	48	50	144	4	94	104	12	M16x70	10.9	240	8
	80	10700												
	100	15800												
AF-100	95	15800	197	52	54	156	4	104	113	14	M16x75	10.9	240	9,5
	90	15800												

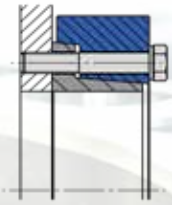
AF Series 22



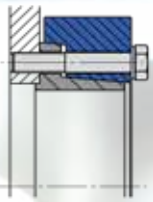
Model A



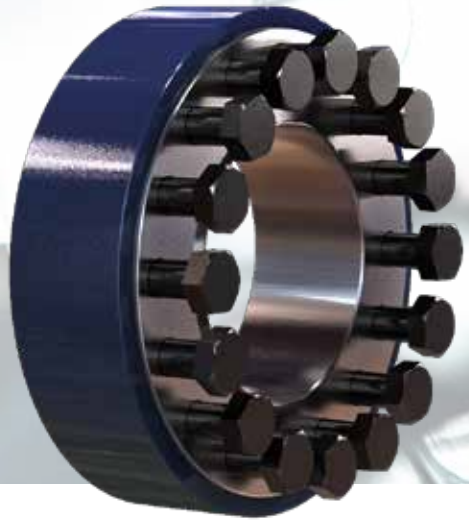
Model AB



Model C

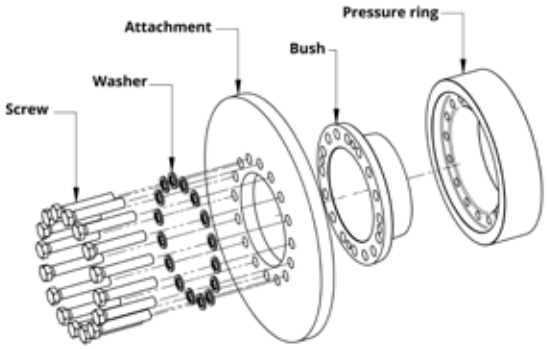


Model BC



Used symbols

Typ		Nominal size
d_W	[mm]	Shaft diameter
$M_{t\,max}$	[Nm]	Max transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
H	[mm]	Width of the external clamping elemer
A	[mm]	Pitch circle diameter
C	[mm]	Length of the centering
d	[mm]	Diameter of the centering
B	[mm]	Attachment size
		Screws
Z		Number of screws
S		Size of screws
M_A	[Nm]	Required tightening torque



Example: **AF-60-22-60 A**

- Model
- Shaft Diameter
- Series
- Nominal Size

Design of the external clamping element

Pressure ring painted
Dimension H in unlocked position

Applies to all types:
b > 1,4 x Screw diameter

From M10 with washers

Details of the fit

Shaft:

up to	d_W	150mm	H7 / h6
from	d_W	155mm	H7 / g6

Centring:

up to	d	150mm	H7 / h6
from	d	155mm	H7 / g6

AF Series 22

Typ	d_w mm	Mt_{max} Nm	D mm	I mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	12	50												
AF-12	11	50	35	10	7	24	1,5	14	13	3	M6x20	10.9	12	0,1
	14	70												
AF-14	13	70	38	10	7,3	26	1,5	16	15	3	M6x20	10.9	12	0,1
	16	80												
AF-16	15	80	41	13,5	9	28	2	18	17	3	M6x25	10.9	12	0,1
	18	130												
AF-18	17	130	44	13,5	9	30	2	20	19	4	M6x25	10.9	12	0,1
	20	140												
AF-20	19	140	47	13,5	9	32	2	22	21	4	M6x25	10.9	12	0,2
	25	200												
AF-25	24	200	50	17	17	36	2	27	26	5	M6x30	10.9	12	0,2
	22	200												
	30	300												
AF-30	28	300	60	18	19	44	3	32	32	6	M6x30	10.9	12	0,3
	26	300												
	36	500												
AF-35	35	500	72	20	21	52	3	38	38	5	M8x35	10.9	29	0,5
	32	450												
	44	750												
AF-40	40	750	80	22	23	61	3	46	47	6	M8x35	10.9	29	0,7
	38	720												
	50	1300												
AF-50	45	1300	90	24	25	68	3	53	53	8	M8x40	10.9	29	0,9
	42	1000												
	55	1600												
AF-55	52	1600	100	26	27	72	3	58	58	8	M8x40	10.9	29	1,2
	45	1600												
	62	2000												
AF-60	60	2000	110	26	27	80	3	63	66	9	M8x40	10.9	29	1,4
	50	2000												
	70	2100												
AF-70	65	2100	115	26	27	86	4	74	72	9	M8x40	10.9	29	1,5
	60	2100												
	80	4000												
AF-80	75	4000	141	28	29	100	4	84	82	10	M10x45	10.9	58	2,5
	70	4000												
	90	5700												
AF-90	85	5700	155	34	35	114	4	94	94	12	M10x50	10.9	58	3,6
	80	5700												

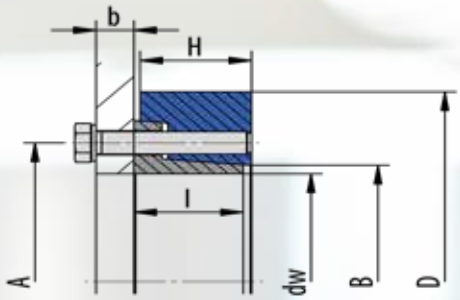
AF Series 22

Type	d_w mm	Mt_{max} Nm	D mm	I mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	100	8400												
AF-100	95	8400	170	39	40	124	4	104	104	12	M12x60	10.9	100	4,6
	90	8400												
	110	9200												
AF-110	105	9200	185	45	46	136	5	116	114	12	M12x70	10.9	100	6,2
	100	9200												
	125	21000												
AF-125	120	21000	215	48	50	160	5	126	134	12	M16x75	10.9	240	8,8
	115	21000												
	140	26000												
AF-140	135	26000	230	52	54	176	5	146	146	14	M16x80	10.9	240	11
	130	26000												
	160	31000												
AF-155	155	31000	263	54	55	192	5	166	162	15	M16x80	10.9	240	15
	150	31000												
	170	36000												
AF-170	165	36000	290	61	62	204	5	176	175	16	M16x90	10.9	240	21
	160	36000												
	180	43000												
AF-180	175	43000	300	61	62	218	5	186	185	18	M16x90	10.9	240	22
	170	43000												
	190	60000												
AF-190	185	60000	320	77	78	232	5	196	195	15	M20x110	10.9	470	31
	180	60000												
	200	67000												
AF-200	195	67000	340	75	78	246	5	206	209	16	M20x110	10.9	470	35
	190	67000												
	220	93000												
AF-220	210	93000	370	95	96	270	5	226	230	14	M24x130	10.9	820	53
	200	93000												
	240	117000												
AF-240	230	117000	405	98	100	296	5	246	248	16	M24x140	10.9	820	64
	220	117000												
	260	126000												
AF-260	250	126000	430	106	106	318	5	266	266	16	M24x150	10.9	820	80
	240	126000												
	280	151000												
AF-280	270	151000	460	118	118	340	5	286	288	18	M24x160	10.9	820	95
	260	151000												
	300	178000												
AF-300	290	178000	485	125	126	360	5	306	309	20	M24x170	10.9	820	110
	280	178000												
	320	248000												
AF-320	300	248000	520	125	126	380	5	330	328	20	M27x170	10.9	1210	134
	280	248000												

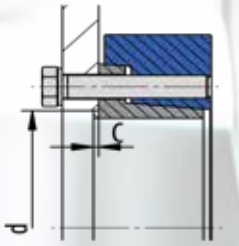
AF Series 22

Type	d_w mm	Mt_{max} Nm	D mm	I mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	340	275000												
AF-340	320	275000	570	134	136	402	5	350	351	21	M27x180	10.9	1210	180
	300	275000												
	360	290000												
AF-360	340	290000	590	142	144	424	8	370	367	21	M27x180	10.9	1210	200
	320	290000												
	390	363000												
AF-390	370	363000	630	146	148	458	8	400	398	20	M30x190	10.9	1640	222
	350	363000												
	420	407000												
AF-420	400	407000	650	166	168	490	8	430	424	21	M30x210	10.9	1640	263
	380	407000												
	440	426000												
AF-440	420	426000	670	174	176	512	8	450	448	21	M30x220	10.9	1640	309
	400	426000												

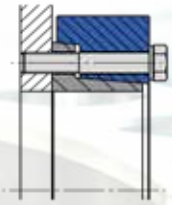
AF Series 23



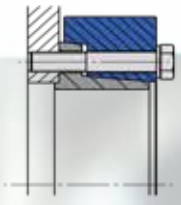
Model A



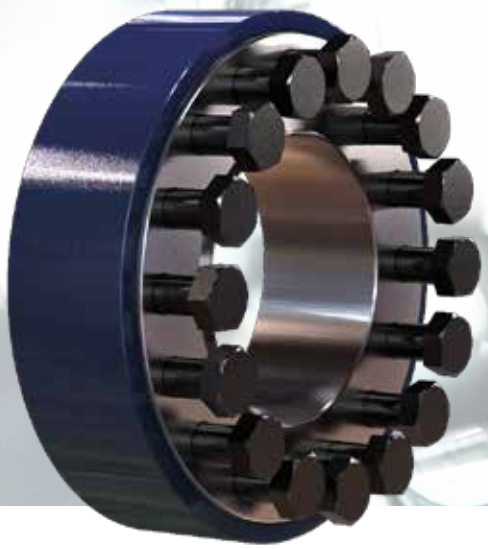
Model AB



Model C

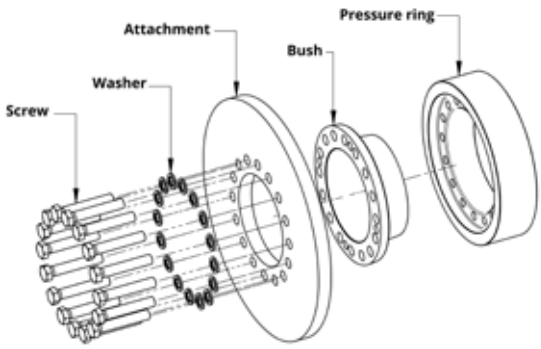


Model BC



Used symbols

Typ		Nominal size
d_W	[mm]	Shaft diameter
$M_{t\,max}$	[Nm]	Max transmittable torque
D	[mm]	Outer diameter
I	[mm]	Length of the bush
H	[mm]	Width of the external clamping elemen
A	[mm]	Pitch circle diameter
C	[mm]	Length of the centering
d	[mm]	Diameter of the centering
B	[mm]	Attachment size
		Screws
Z		Number of screws
S		Size of screws
M_A	[Nm]	Required tightening torque



Example: **AF-60-23-60 A**

- Model
- Shaft Diameter
- Series
- Nominal Size

Design of the external clamping element

Pressure ring painted
Dimension H in unlocked position

Applies to all types:
b > 1,4 x Screw diameter

From M10 with washers

Details of the fit

Shaft:

up to	d_W 150mm	H7 / h6
from	d_W 155mm	H7 / g6

Centring:

up to	d 150mm	H7 / h6
from	d 155mm	H7 / g6

AF Series 23

Type	d_w mm	Mt_{max} Nm	D mm	I mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	50	3300												
AF-50	45	2200	115	29	30	84	3	53	58	7	M12x45	10.9	100	2
	40	1400												
	60	4700												
AF-60	55	3500	120	32	34	94	3	63	66	9	M12x50	10.9	100	2,2
	50	2300												
	70	9400												
AF-70	65	7600	148	38	40	112	4	74	79	8	M16x60	10.9	240	3,9
	60	5800												
	80	12000												
AF-80	75	10000	167	43	46	130	4	84	94	9	M16x65	10.9	240	5,4
	70	8000												
	90	18000												
AF-90	85	15000	185	48	50	144	4	94	104	12	M16x70	10.9	240	7,4
	80	12000												
	100	23000												
AF-100	95	19000	197	52	54	156	4	104	114	14	M16x75	10.9	240	8,7
	90	16000												
	110	27000												
AF-110	105	26000	215	56	58	166	5	116	124	10	M20x90	10.9	470	11
	100	22000												
	120	43000												
AF-120	115	38000	230	62	65	186	5	126	134	14	M20x90	10.9	470	13,6
	110	33000												
	140	56000												
AF-140	130	50000	290	75	76	216	5	146	160	16	M20x100	10.9	470	29
	120	39000												
	160	77000												
AF-160	150	77000	320	82	83	234	5	166	180	14	M24x110	10.9	820	36,1
	140	64000												
	180	104000												
AF-180	170	101000	340	91	94	276	5	186	205	16	M24x130	10.9	820	45,3
	160	85000												
	200	144000												
AF-200	190	133000	370	95	96	290	5	206	226	16	M27x140	10.9	1210	53,7
	180	114000												
	220	178000												
AF-220	210	178000	405	96	96	320	5	226	246	18	M27x140	10.9	1210	64,3
	200	159000												
	240	211000												
AF-240	230	211000	430	109	110	340	5	246	267	20	M27x150	10.9	1210	81
	220	211000												
	260	232000												
AF-260	250	234000	460	118	118	356	5	286	289	21	M27x160	10.9	1210	109,4
	240	234000												

AF Series 23

Type	d_w mm	Mt_{max} Nm	D mm	I mm	H mm	A mm	C mm	d mm	B mm	Z Pcs.	S	Class	Ma Nm	Weight kg
	280	234000												
AF-280	270	234000	485	124	125	360	5	306	304	21	M27x180	10.9	1210	116
	260	234000												
	300	247000												
AF-300	290	247000	520	128	126	380	5	330	315	21	M27x180	10.9	1210	141
	280	247000												
	320	299000												
AF-320	310	299000	550	134	136	402	5	350	336	24	M27x180	10.9	1210	161
	300	299000												
	340	315000												
AF-340	330	315000	570	140	143	424	8	370	368	24	M27x180	10.9	1210	177
	320	315000												
	360	410000												
AF-360	350	410000	610	144	147	454	8	400	383	24	M30x190	10.9	1640	210
	340	410000												
	390	439000												
AF-390	380	439000	630	164	167	486	8	430	428	24	M30x200	10.9	1640	250
	360	439000												
	420	457000												
AF-420	410	457000	670	172	175	506	10	450	440	24	M30x220	10.9	1640	292
	390	457000												
	440	562000												
AF-440	420	562000	700	172	175	534	10	470	468	28	M30x220	10.9	1640	318
	400	562000												

Modern mechanical processing in perfection

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Shaft Couplings

Rigid shaft Coupling

Description of function

Rigid Shaft Coupling

The main function of the rigid shaft coupling is the safe and backlash-free connection of two shafts by means of friction. For example between a drive shaft and driven shaft and mainly to transmit torque. Shaft couplings consist of a connecting sleeve and two external clamping systems. They are not separable like flange coupling. The external clamping systems generate a backlash-free connection by pressing the connecting sleeve onto the shaft ends.

The external clamping system does not transmit any torque or moments between the shaft ends, they just provide the necessary clamping forces. Those external clamping systems are not part of the flow of forces, but the connecting sleeve is.

The couplings have to be installed by moving them onto the shaft ends followed by tightening of the external clamping systems via bolting. To achieve proper operation and a sufficiently high coefficient of friction, the contact surfaces at the shaft extensions must be free of grease, dry and clean.

Our rigid shaft couplings are supplied ready for installation. The functional surfaces of the external clamping systems, threads and head rests of the screws are provided with lubricant at the factory.

Product data

A detailed installation manual is available on the Internet.

Data Sheets

Contact us if a data sheet for an individual product is required.

• For CAD data of couplings, contact us directly, please.

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or

Mike Kemper
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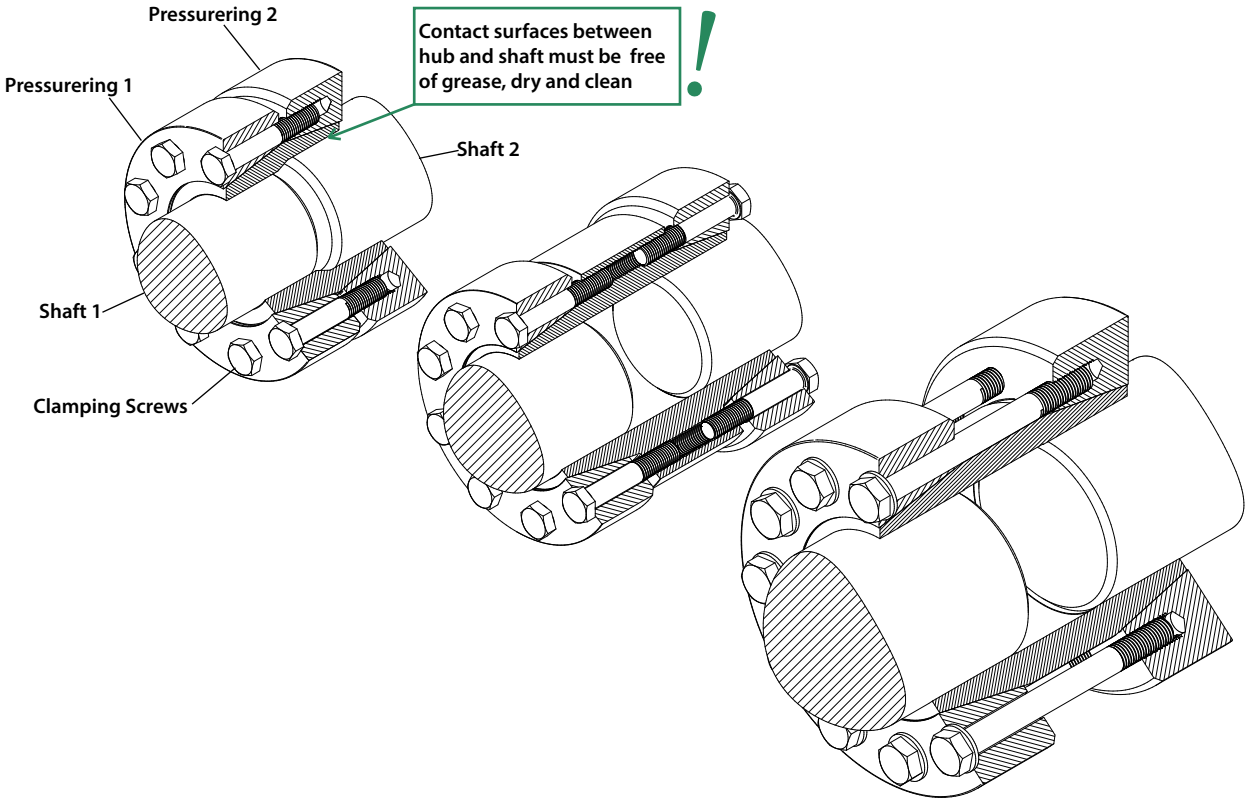


Basics-Design

Advantages and differences to other systems

Clamping length for pressure rings

The insertion depth of the shaft at the junction lK (between shaft and sleeve), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stifness of the shaft. A good approximation can be made from the following equation:

Clamping length for pressure rings

The insertion depth of the shaft at the junction lK (between shaft and sleeve), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stifness of the shaft. A good approximation can be made from the following equation:

Clamping length of the insertion depth:

$$l_K = 0{,}316\,(d - d_w) + l$$

The cylindrical surfaces should be located symmetrically under the shrink disc or pressure ring! With a slightly different clamping length the transmissible torque M will not change, because a smaller contact surface results in a higher pressure - also a larger contact surface causes lower pressure.

Pursue the same diameter - but an adaptation to different diameters is also possible

Basically the target should be to connect shaft ends of the same size. With larger deviations the sleeves can be adapted for the different diameters. This is done by using different pressure rings or shrink discs or bore diameter.

Tightening torque of the clamping screws

When using different pressure rings and shaft diameters, the tightening torque and therefore the clamping forces are adjustable. For example, this is also possible with soft shaft materials and reduces, if required, the stresses in the components.

$$M\,(New) = \frac{M_{Agew}}{M_A}\,M \quad \text{also}$$

$$p_N\,(New) = \frac{M_{Agew}}{M_A}\,p_N$$

The tightening torques can not be reduced arbitrary, therefore apply the following limits:

$$M_{Agew} \geq \left\{ \begin{array}{ll} \text{Class} & 8.8 : 0{,}85\,M_A \\ \text{Class} & 10.9 : 0{,}70\,M_A \\ \text{Class} & 12.9 : 0{,}60\,M_A \end{array} \right\} \leq M_A$$

Positioning

The cylindrical connection, as well as the used clearance, allows an easy and precise positioning of the sleeves on the shaft ends. During the clamping process there is no more shift.

No hydraulic necessary

A hydraulic expansion of the hubs is not necessary for mounting.

No heating necessary

There is no need for expansion of the sleeves by heating. To increase the clearance between the shaft and sleeve, a slight warming is possible.

Shafts with keyways

The couplings can be used on shafts with keyways. As far as possible, the keyways should be closed.

Tolerances and surfaces

The values found in the product data, are based on surface quality and tolerances, according to the table below. These values are given as recommendations.

Higher surface roughness reduces the transmissible torque and promote unwanted settling.

Larger clearance also reduces the transmissible torque and increases stresses in the connecting sleeve.

If you need different shaft tolerances, please let us know. The holes in the sleeves can then be adjusted accordingly!

Recommended tolerances and surfaces roughness

>	≤	FS_{max} mm	Clearance Hub/Shaft	Rz µm
30	50	0,032	H6/h6	10
50	80	0,049	H7/h6	10
80	120	0,057	H7/h6	16
120	150	0,065	H7/h6	16
150	180	0,079	H7/g6	16
180	250	0,090	H7/g6	16
250	315	0,101	H7/g6	16
315	400	0,111	H7/g6	16
400	500	0,123	H7/g6	25
500	630	0,136	H7/g6	25

Basics-Calculation

The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:

Transmissible torque

A shrink connection is capable of transmitting torque, bending moment and axial force. Substituted, the transmissible torque M_{max} is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment M_{res}.
The formula below applies to the resulting moment:

$$M_{res} \leq M_{max}$$

At different load cases, they must be individually checked against M_{max}!

M_{res} is determined for combined loads as follows:

$$M_{res} = \sqrt{M_T{}^2 + 2M_B{}^2 + (F_{AX}\,\frac{dW}{2})^2}$$

with $M_B \leq 0{,}4\,M_T$ as the limit* for the static bending moment

*In several, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,4 MT is due to the change of the surface pressure at the edges of the connection. (This information applies to the shrink connection of the coupling only!)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max} .

Bending moment only:
The maximum static bending moment corresponds to 0,4 M_T .

Axial force only:
The maximum axial force is $M_{max}\frac{2}{d_W}$

Static and dynamic load

For some applications, a static review of the coupling is sufficient.
The clamping forces of the shrink connection are static. Also steady torques and/or axial forces can be considered as static loads. Rotating bending, has to be considered as dynamic load and the coupling must be examined for that. Therefore, it is also essential to specify the occurring load cases.

Shaft calculation

The sleeve will be deformed due to the applied clamping force. In addition to the clearance between shaft and sleeve, shaft stiffness and surface finish should be concidered. For solid shafts the stiffness can be ignored, but with hollow shafts (see „Bore in the shaft (hollow shaft)“) there is higher deformation and thus higher stresses in the components. This must be considered in addition to other loads.

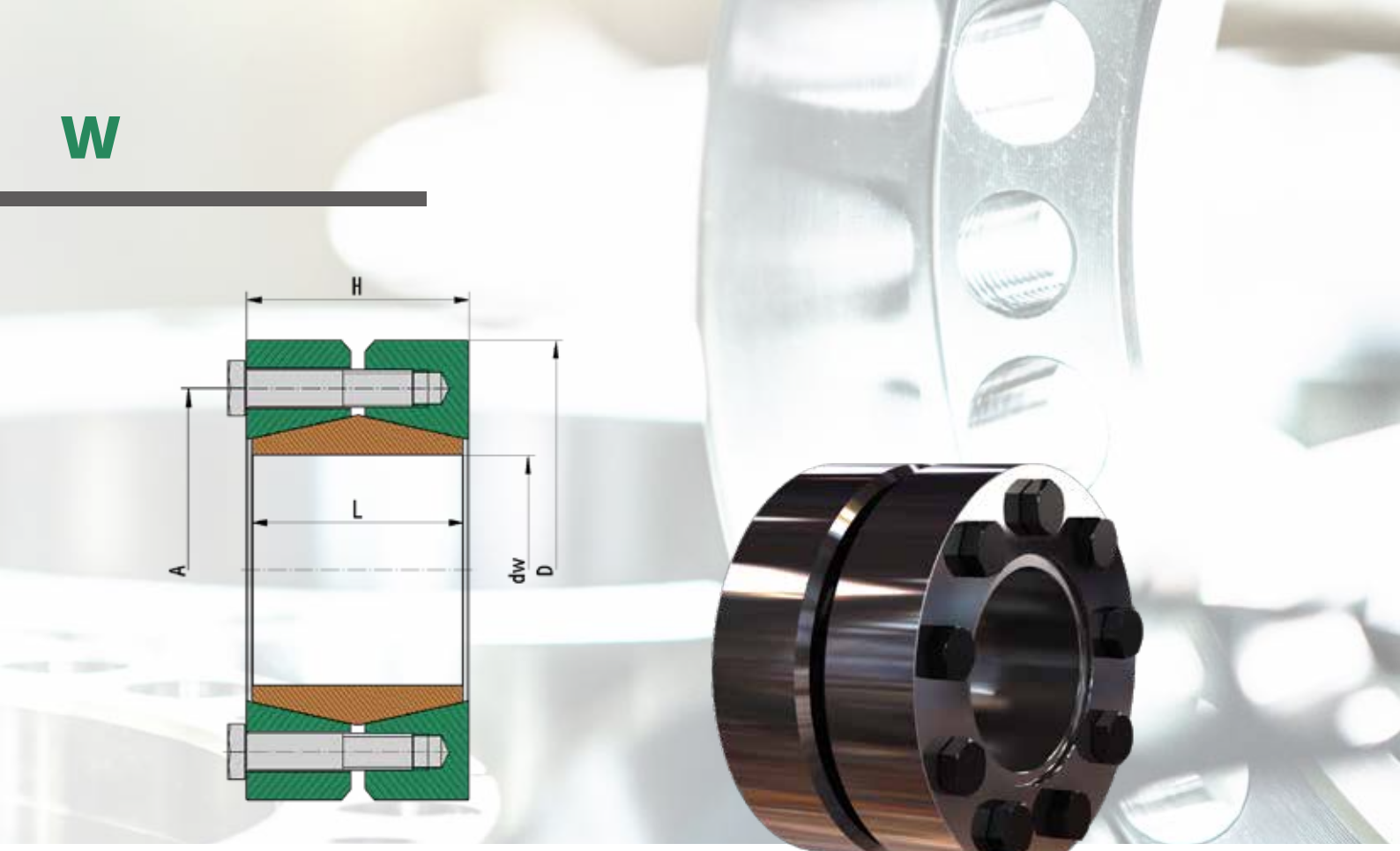
Notch effect

Generally there is a notch effect on the components, caused by the radial pressure of the pressure ring. This depends mainly on the applied pressure. The notch effect is generally higher on the sleeve than on the shaft, because the pressure ring is directly pressed onto the sleeve, while the stresses are distributed through the sleeve before reaching the shaft. The notch factors range from 2,5 to 3,5 for the sleeve and between 1,5 and 2 for the shaft. This can be mitigated bysuitable design features, such as relief notches.

Bore in the shaft (hollow shaft)

A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure p_W , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 d_W .

W



Used symbols

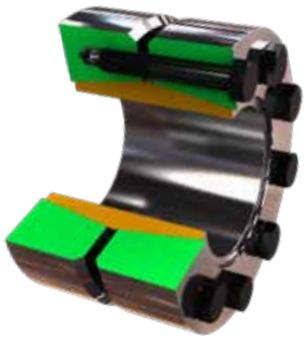
dw	[mm]	Shaft diameter	
M_{max}	[Nm]	max. transmittable torque	F_{ax} = 0
F_{ax}	[kN]	max. transmittable axial force	M_t = 0
D	[mm]	Outer diameter of coupling	
L	[mm]	Length of sleeve	
H	[mm]	Width of shaft coupling	
A	[mm]	Pitch circle diameter of bolting	
M_A		Required tightening torque of clamping screws	
Z		Number of screws	
S		Size of screws	
p_W	[N/mm²]	Average contact pressure on the shaft	

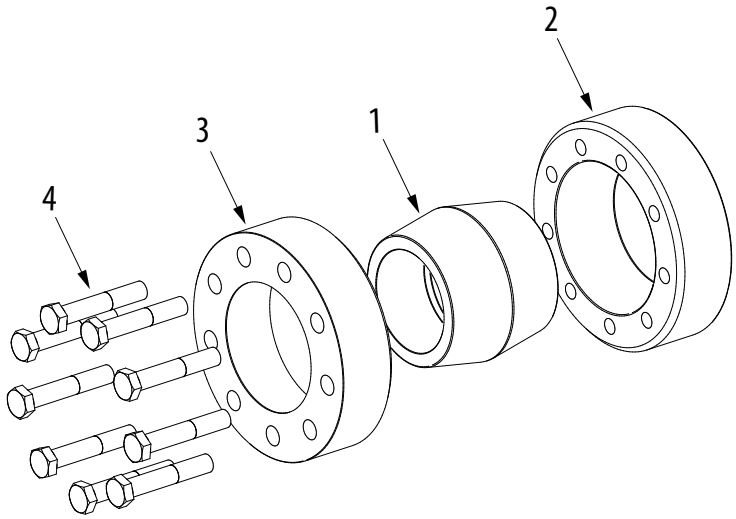
Design of the disc

d < 070	Discs galvanized without washers
d ≥ 070	Discs painted with washers

Dimensions H & e in unlocked position

Pos.	Designation
1	Sleeve
2	Pressure ring G
3	Pressure ring Dg
4	Screw





Ordering example: TAS W-Typ/d1/ d2 (e.g: TAS W070/065/070 ... further sizes on request)

W

Type	d_w	M_{max}	F_{ax}	D	L	H	A	M_A	Z	S	DIN	Class	pw	Weight
	mm	Nm	kN	mm	mm	mm	mm	mm	Pcs				N/mm²	Kg
W011	10	30	6	47	25	27	30	6	6	M5 x 20	933	10.9	150	0,4
W011	11	36	7	47	25	27	30	6	6	M5 x 20	933	10.9	189	0,4
W011	12	60	10	47	25	27	30	6	6	M5 x 20	933	10.9	222	0,4
W015	13	70	11	55	30	33	37	6	7	M5 x 25	933	10.9	83	0,5
W015	15	150	20	55	30	33	37	6	7	M5 x 25	933	10.9	126	0,5
W015	17	180	21	55	30	33	37	6	7	M5 x 25	933	10.9	160	0,5
W020	18	200	22	60	34	37	42	12	8	M6 x 30	931	10.9	213	0,7
W020	20	270	27	60	34	37	42	12	8	M6 x 30	931	10.9	241	0,7
W020	22	350	31	60	34	37	42	12	8	M6 x 30	931	10.9	266	0,7
W025	23	370	32	66	38	41	48	12	8	M6 x 30	931	10.9	178	0,8
W025	25	470	37	66	38	41	48	12	8	M6 x 30	931	10.9	197	0,8
W025	27	600	44	66	38	41	48	12	8	M6 x 30	931	10.9	214	0,8
W030	28	540	38	76	42	45	54	12	10	M6 x 35	931	10.9	215	1,3
W030	30	670	44	76	42	45	54	12	10	M6 x 35	931	10.9	217	1,3
W030	32	750	46	76	42	45	54	12	10	M6 x 35	931	10.9	231	1,3
W035	33	750	45	80	46	49	62	12	12	M6 x 35	931	10.9	168	1,5
W035	35	900	51	80	46	49	62	12	12	M6 x 35	931	10.9	180	1,5
W035	37	1050	56	80	46	49	62	12	12	M6 x 35	931	10.9	190	1,5
W040	38	1250	65	98	50	54	71	30	8	M8 x 40	931	10.9	175	2,5
W040	40	1550	77	98	50	54	71	30	8	M8 x 40	931	10.9	184	2,5
W040	43	1850	86	98	50	54	71	30	8	M8 x 40	931	10.9	196	2,5
W050	44	2200	100	115	60	64	86	59	8	M10 x 45	931	10.9	189	4
W050	50	3300	132	115	60	64	86	59	8	M10 x 45	931	10.9	200	4
W050	54	3800	140	115	60	64	86	59	8	M10 x 45	931	10.9	212	4
W060	55	4050	147	125	70	74	98	59	10	M10 x 50	931	10.9	177	5,3
W060	60	5100	170	125	70	74	98	59	10	M10 x 50	931	10.9	190	5,3
W060	64	6100	190	125	70	74	98	59	10	M10 x 50	931	10.9	198	5,3
W070	65	6500	200	148	80	85	112	59	12	M10 x 60	931	10.9	172	8,4
W070	70	8200	234	148	80	85	112	59	12	M10 x 60	931	10.9	181	8,4
W070	74	9000	243	148	80	85	112	59	12	M10 x 60	931	10.9	188	8,4
W080	75	10500	280	170	94	99	130	100	12	M12 x 70	931	10.9	73	13,1
W080	80	12300	307	170	94	99	130	100	12	M12 x 70	931	10.9	186	13,1
W080	84	14000	333	170	94	99	130	100	12	M12 x 70	931	10.9	192	13,1
W090	85	14200	334	185	104	109	145	250	7	M16 x 80	931	10.9	166	17
W090	90	16400	364	185	104	109	145	250	7	M16 x 80	931	10.9	173	17
W090	94	18000	383	185	104	109	145	250	7	M16 x 80	931	10.9	177	17
W100	80	19100	402	200	114	119	158	250	9	M16 x 90	931	10.9	200	21
W100	100	23100	462	200	114	119	158	250	9	M16 x 90	931	10.9	189	21
W100	104	26000	500	200	114	119	158	250	9	M16 x 90	931	10.9	193	21
W110	105	28500	542	217	124	129	170	250	12	M16 x 90	931	10.9	214	27
W110	110	32000	581	217	124	129	170	250	12	M16 x 90	931	10.9	218	27
W110	114	35000	614	217	124	129	170	250	12	M16 x 90	931	10.9	221	27
W120	115	38500	669	235	134	139	184	250	13	M16 x 90	931	10.9	199	33
W120	120	43500	725	235	134	139	184	250	13	M16 x 90	931	10.9	200	33
W120	124	46000	742	235	134	139	184	250	13	M16 x 90	931	10.9	204	33

W

Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs.	S	DIN	Class	pw N/mm²	Weight Kg
W130	125	47500	760	267	150	155	206	490	10	M20 x 110	931	10.9	195	45
W130	130	55000	846	267	150	155	206	490	10	M20 x 110	931	10.9	198	45
W130	134	58000	865	267	150	155	206	490	10	M20 x 110	931	10.9	200	45
W140	135	62000	918	280	160	165	218	490	11	M20 x 110	931	10.9	192	55
W140	140	67000	957	280	160	165	218	490	11	M20 x 110	931	10.9	195	55
W140	144	71000	986	280	160	165	218	490	11	M20 x 110	931	10.9	197	55
W150	145	73000	1006	302	170	175	230	490	12	M20 x 120	931	10.9	186	70
W150	150	78000	1040	302	170	175	230	490	12	M20 x 120	931	10.9	188	70
W150	154	82000	1065	302	170	175	230	490	12	M20 x 120	931	10.9	190	70
W160	115	82000	1058	315	180	185	242	490	13	M20 x 120	931	10.9	178	80
W160	120	88000	1100	315	180	185	242	490	13	M20 x 120	931	10.9	182	80
W160	125	97000	1175	315	180	185	242	490	13	M20 x 120	931	10.9	184	80
W180	166	108000	1301	345	200	205	265	490	16	M20 x 130	931	10.9	179	105
W180	180	132000	1465	345	200	205	265	490	16	M20 x 130	931	10.9	181	105
W180	185	140000	1513	345	200	205	265	490	16	M20 x 130	931	10.9	183	105
W200	186	153000	1645	375	225	230	295	490	20	M20 x 150	931	10.9	174	135
W200	200	184000	1840	375	225	230	295	490	20	M20 x 150	931	10.9	178	135
W200	210	204000	1943	375	225	230	295	490	20	M20 x 150	931	10.9	182	135
W220	211	214000	2028	410	253	258	320	840	18	M24 x 160	931	10.9	191	180
W220	220	240000	2180	410	253	258	320	840	18	M24 x 160	931	10.9	193	180
W220	230	260000	2260	410	253	258	320	840	18	M24 x 160	931	10.9	196	180
W240	231	280000	2424	435	273	278	350	840	20	M24 x 180	931	10.9	182	210
W240	240	305000	2540	435	273	278	350	840	20	M24 x 180	931	10.9	184	210
W240	250	334000	2672	435	273	278	350	840	20	M24 x 180	931	10.9	185	210
W260	251	390000	3108	515	300	305	380	1250	20	M27 x 200	931	10.9	204	345
W260	260	425000	3270	515	300	305	380	1250	20	M27 x 200	931	10.9	206	345
W260	270	465000	3444	515	300	305	380	1250	20	M27 x 200	931	10.9	208	345

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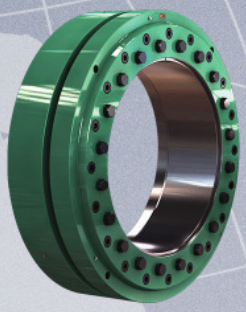

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for Wind power and Industrial applications

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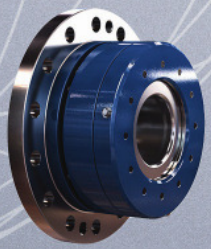
for shaftings



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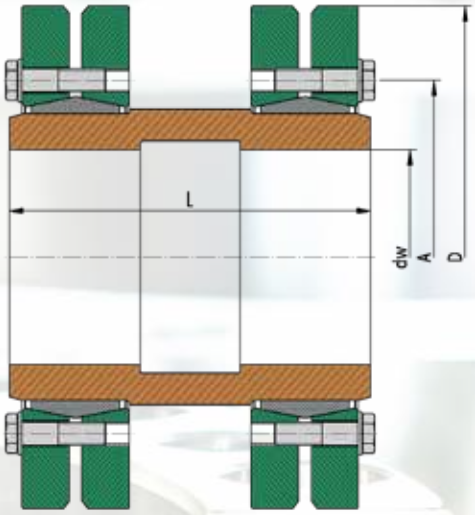
WK



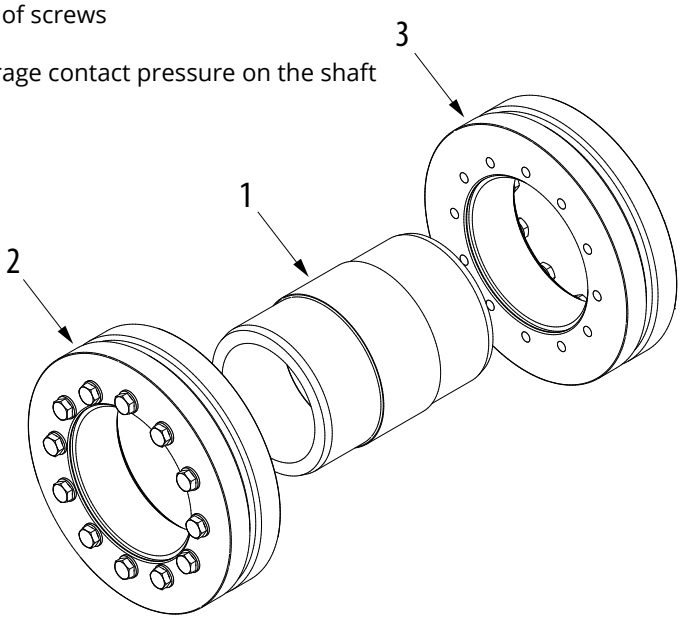
Used symbols

dw	[mm]	Shaft diameter	
M_{max}	[Nm]	max. transmittable torque	F_{ax} = 0
F_{ax}	[kN]	max. transmittable axial force	M_t = 0
D	[mm]	Outer diameter of coupling	
L	[mm]	Length of sleeve	
H	[mm]	Width of shaft coupling	
A	[mm]	Pitch circle diameter of bolting	
M_A		Required tightening torque of clamping screws	
Z		Number of screws	
S		Size of screws	
p_W	[N/mm²]	Average contact pressure on the shaft	

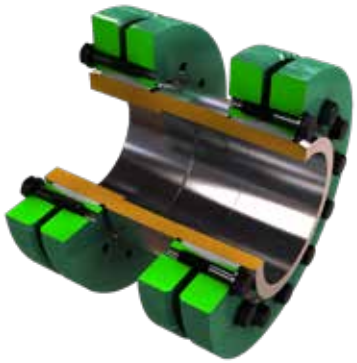
Design of the disc

d < 070	Discs galvanized without washers
d ≥ 070	Discs painted with washers

Dimensions H & e in unlocked position



Pos.	Designation
1	Sleeve
2	Shrink Disc
3	Shrink Disc



Ordering example: **TAS WK-Typ/d/D** (e.g: TAS WK 240/150/200 ... further sizes on request)

WK

Type	d_w	M_{max}	F_{ax}	D	L	A	M_A	Z	S	DIN	Class	pw	Weight
	mm	Nm	kN	mm	mm	mm	mm	Pcs.				N/mm²	Kg
WK024	19	250	26	50	50	36	6	6	M5	933	10.9	235	0,7
WK024	20	300	30	50	50	36	6	6	M5	933	10.9	254	0,7
WK024	21	360	34	50	50	36	6	6	M5	933	10.9	273	0,7
WK030	24	310	26	60	55	44	6	6	M5	933	10.9	159	1
WK030	25	360	29	60	55	44	6	6	M5	933	10.9	171	1
WK030	26	420	32	60	55	44	6	6	M5	933	10.9	183	1
WK036	28	500	36	72	65	52	12	5	M6	933	10.9	169	1,3
WK036	30	640	43	72	65	52	12	5	M6	933	10.9	186	1,3
WK036	31	690	45	72	65	52	12	5	M6	933	10.9	189	1,3
WK044	34	880	52	80	70	61	12	7	M6	933	10.9	178	2
WK044	35	970	55	80	70	61	12	7	M6	933	10.9	185	2
WK044	36	1000	56	80	70	61	12	7	M6	933	10.9	192	2
WK050	38	1000	53	90	80	70	12	8	M6	931	10.9	161	2,5
WK050	40	1200	60	90	80	70	12	8	M6	931	10.9	172	2,5
WK050	42	1500	71	90	80	70	12	8	M6	931	10.9	182	2,5
WK055	42	1200	57	100	85	75	12	8	M6	931	10.9	139	3,5
WK055	45	1500	67	100	85	75	12	8	M6	931	10.9	152	3,5
WK055	48	1800	75	100	85	75	12	8	M6	931	10.9	164	3,5
WK062	48	1900	79	110	90	86	12	10	M6	931	10.9	168	4
WK062	50	2100	84	110	90	86	12	10	M6	931	10.9	174	4
WK062	52	2200	85	110	90	86	12	10	M6	931	10.9	171	4
WK068	50	1700	68	115	100	86	12	10	M6	931	10.9	145	4,5
WK068	55	2200	80	115	100	86	12	10	M6	931	10.9	148	4,5
WK068	60	2900	97	115	100	86	12	10	M6	931	10.9	166	4,5
WK075	55	2800	102	138	120	100	30	7	M8	931	10.9	175	5
WK075	60	3600	120	138	120	100	30	7	M8	931	10.9	192	5
WK075	65	4600	142	138	120	100	30	7	M8	931	10.9	207	5
WK080	60	3200	107	145	130	100	30	7	M8	931	10.9	168	6
WK080	65	4100	126	145	130	100	30	7	M8	931	10.9	182	6
WK080	70	5100	146	145	130	100	30	7	M8	931	10.9	195	6
WK090	65	4900	151	155	140	114	30	10	M8	931	10.9	181	11
WK090	70	6000	171	155	140	114	30	10	M8	931	10.9	192	11
WK090	75	7300	195	155	140	114	30	10	M8	931	10.9	203	11
WK100	70	6000	171	170	160	124	30	12	M8	931	10.9	170	15
WK100	75	7300	195	170	160	124	30	12	M8	931	10.9	180	15
WK100	80	8800	220	170	160	124	30	12	M8	931	10.9	189	15
WK110	75	7400	197	185	180	136	59	9	M10	931	10.9	159	19
WK110	80	8900	223	185	180	136	59	9	M10	931	10.9	168	19
WK110	85	10300	242	185	180	136	59	9	M10	931	10.9	171	19
WK125	85	11100	261	215	200	160	59	12	M10	931	10.9	172	26
WK125	90	13100	291	215	200	160	59	12	M10	931	10.9	180	26
WK125	95	15200	320	215	200	160	59	12	M10	931	10.9	188	26
WK140	95	15500	326	230	210	175	100	10	M12	931	10.9	175	34
WK140	100	17900	358	230	210	175	100	10	M12	931	10.9	182	34
WK140	105	20400	389	230	210	175	100	10	M12	931	10.9	188	34

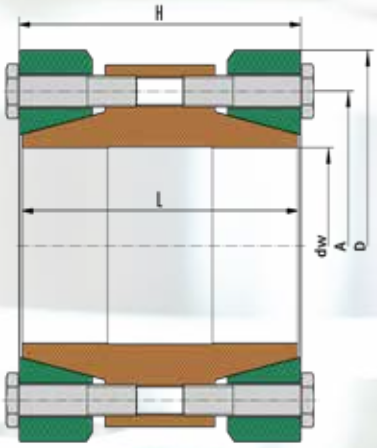
WK

Type	d_w	M_{max}	F_{ax}	D	L	A	M_A	Z	S	DIN	Class	pw	Weight
	mm	Nm	kN	mm	mm	mm	mm	Pcs.				N/mm²	Kg
WK155	105	21100	402	265	230	192	100	12	M12	931	10.9	179	50
WK155	110	23900	435	265	230	192	100	12	M12	931	10.9	185	50
WK155	115	26900	468	265	230	192	100	12	M12	931	10.9	190	50
WK165	115	34800	605	290	240	210	250	8	M16	931	10.9	219	65
WK165	120	38700	645	290	240	210	250	8	M16	931	10.9	224	65
WK165	125	42300	677	290	240	210	250	8	M16	931	10.9	226	65
WK175	125	38600	618	300	250	220	250	8	M16	931	10.9	206	68
WK175	130	42600	655	300	250	220	250	8	M16	931	10.9	211	68
WK175	135	46900	695	300	250	220	250	8	M16	931	10.9	215	68
WK185	135	53700	796	330	265	236	250	10	M16	931	10.9	194	100
WK185	140	59000	843	330	265	236	250	10	M16	931	10.9	198	100
WK185	145	64400	888	330	265	236	250	10	M16	931	10.9	202	100
WK195	140	67200	960	350	280	246	250	12	M16	931	10.9	226	110
WK195	150	79500	1060	350	280	246	250	12	M16	931	10.9	233	110
WK195	155	84800	1094	350	280	246	250	12	M16	931	10.9	232	110
WK200	150	76700	1023	350	290	246	250	12	M16	931	10.9	224	125
WK200	155	81700	1054	350	290	246	250	12	M16	931	10.9	224	125
WK200	160	88400	1105	350	290	246	250	12	M16	931	10.9	227	125
WK220	160	95800	1198	370	310	270	250	15	M16	931	10.9	199	155
WK220	165	103000	1248	370	310	270	250	15	M16	931	10.9	202	155
WK220	170	111000	1306	370	310	270	250	15	M16	931	10.9	205	155
WK240	170	126000	1482	405	350	295	490	12	M20	931	10.9	221	190
WK240	180	144000	1600	405	350	295	490	12	M20	931	10.9	227	190
WK240	190	163000	1716	405	350	295	490	12	M20	931	10.9	230	190
WK260	190	170000	1789	430	390	321	490	14	M20	931	10.9	214	240
WK260	200	193000	1930	430	390	321	490	14	M20	931	10.9	219	240
WK260	210	217000	2067	430	390	321	490	14	M20	931	10.9	224	240
WK280	210	224000	2133	460	430	346	490	16	M20	931	10.9	209	290
WK280	220	251000	2282	460	430	346	490	16	M20	931	10.9	213	290
WK280	230	280000	2435	460	430	346	490	16	M20	931	10.9	217	290
WK300	230	287000	2496	485	445	364	490	18	M20	931	10.9	208	340
WK300	240	318000	2650	485	445	364	490	18	M20	931	10.9	211	340
WK300	245	334000	2727	485	445	364	490	18	M20	931	10.9	213	340
WK320	240	326000	2717	520	460	386	490	20	M20	931	10.9	217	380
WK320	250	359000	2872	520	460	386	490	20	M20	931	10.9	220	380
WK320	260	391000	3008	520	460	386	490	20	M20	931	10.9	222	380
WK340	250	401000	3208	570	480	408	490	24	M20	931	10.9	224	500
WK340	260	435000	3346	570	480	408	490	24	M20	931	10.9	225	500
WK340	270	476000	3526	570	480	408	490	24	M20	931	10.9	228	500
WK350	270	456000	3378	580	490	432	490	24	M20	931	10.9	209	530
WK350	280	497000	3550	580	490	432	490	24	M20	931	10.9	212	530
WK350	285	518000	3635	580	490	432	490	24	M20	931	10.9	213	530
WK360	280	478000	3414	590	500	432	490	24	M20	931	10.9	203	550
WK360	290	519000	3579	590	500	432	490	24	M20	931	10.9	206	550
Wk360	295	541000	3668	590	500	432	490	24	M20	931	10.9	207	550

WK

Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	A mm	M_A mm	Z Pcs.	S	DIN	Class	pw N/mm²	Weight Kg
WK380	290	587000	4048	645	530	458	840	20	M24	931	10.9	226	660
WK380	300	635000	4233	645	530	458	840	20	M24	931	10.9	229	660
WK380	310	685000	4419	645	530	458	840	20	M24	931	10.9	231	660
WK390	300	646000	4307	660	540	468	840	21	M24	931	10.9	233	720
WK390	310	697000	4497	660	540	468	840	21	M24	931	10.9	235	720
WK390	320	746000	4663	660	540	468	840	21	M24	931	10.9	236	720
WK420	330	831000	5036	690	580	504	840	24	M24	931	10.9	217	860
WK420	340	891000	5241	690	580	504	840	24	M24	931	10.9	219	860
WK420	350	953000	5446	690	580	504	840	24	M24	931	10.9	221	860
WK440	340	832000	4894	750	600	527	840	24	M24	931	10.9	190	990
WK440	350	891000	5091	750	600	527	840	24	M24	931	10.9	192	990
WK440	360	952000	5289	750	600	527	840	24	M24	931	10.9	194	990
WK460	360	1058000	5878	770	620	547	840	28	M24	931	10.9	216	1100
WK460	370	1127000	6092	770	620	547	840	28	M24	931	10.9	217	1100
WK460	380	1198000	6305	770	620	547	840	28	M24	931	10.9	219	1100
WK480	380	1216000	6400	800	645	570	840	30	M24	931	10.9	209	1300
WK480	390	1290000	6615	800	645	570	840	30	M24	931	10.9	211	1300
WK480	400	1367000	6835	800	645	570	840	30	M24	931	10.9	212	1300
WK500	400	1358000	6790	850	670	590	1250	24	M27	931	10.9	211	1480
WK500	410	1431000	6980	850	670	590	1250	24	M27	931	10.9	211	1480
WK500	420	1513000	7205	850	670	590	1250	24	M27	931	10.9	213	1480

WLA



Also available as „WLB“ version!

Used symbols

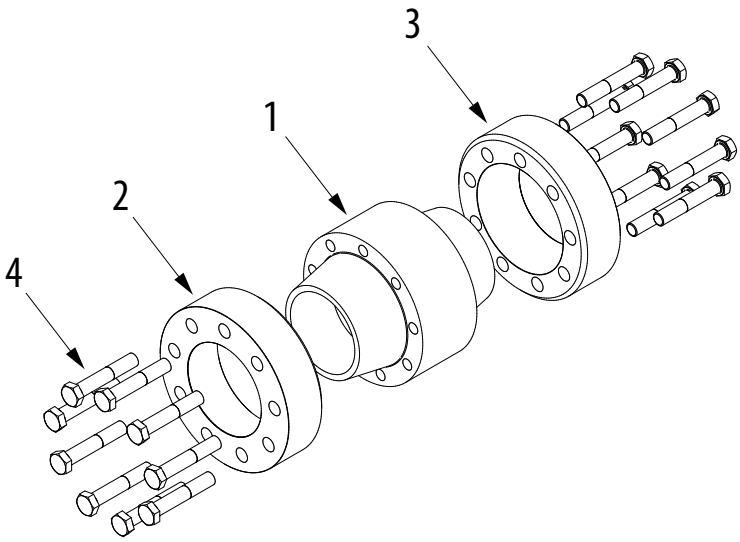
dw	[mm]	Shaft diameter	
M_{max}	[Nm]	max. transmittable torque	F_{ax} = 0
F_{ax}	[kN]	max. transmittable axial force	M_t = 0
D	[mm]	Outer diameter of coupling	
L	[mm]	Length of sleeve	
H	[mm]	Width of shaft coupling	
A	[mm]	Pitch circle diameter of bolting	
M_A		Required tightening torque of clamping screws	
Z		Number of screws	
S		Size of screws	
p_W	[N/mm²]	Average contact pressure on the shaft	

Design of the disc

d < 070	Discs galvanized without washers
d ≥ 070	Discs painted with washers

Dimensions H & e in unlocked position

Pos.	Designation
1	Sleeve
2	Pressure ring DG
3	Pressure ring DG
4	Screw



Ordering example: **TAS WLA-Typ/d/D** (e.g: TAS WLA200/150/200 ... further sizes on request)

WLA

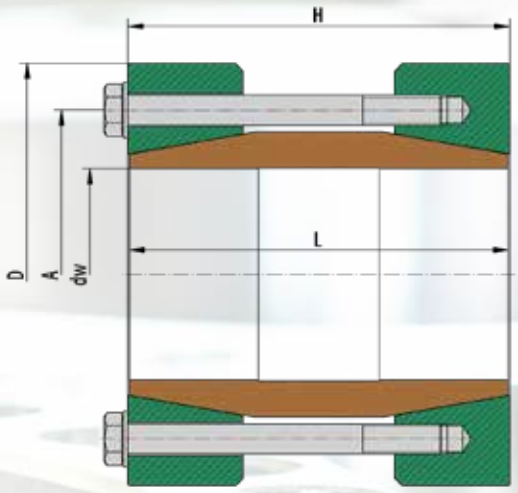
Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs (2x)	S	DIN	Class	pw N/mm²	Weight Kg
WLA015	13	70	11	55	50	53	37	6	7	M5 x 25	933	10.9	83	0,5
WLA015	15	150	20	55	50	53	37	6	7	M5 x 25	933	10.9	126	0,5
WLA015	17	180	21	55	50	53	37	6	7	M5 x 25	933	10.9	160	0,5
WLA020	18	200	22	60	54	57	42	12	8	M6 x 30	931	10.9	213	0,7
WLA020	20	270	27	60	54	57	42	12	8	M6 x 30	931	10.9	241	0,7
WLA020	22	350	31	60	54	57	42	12	8	M6 x 30	931	10.9	266	0,7
WLA025	23	370	32	66	62	65	48	12	8	M6 x 30	931	10.9	178	0,8
WLA025	25	470	37	66	62	65	48	12	8	M6 x 30	931	10.9	197	0,8
WLA025	27	600	44	66	62	65	48	12	8	M6 x 30	931	10.9	214	0,8
WLA030	28	540	38	76	70	73	54	12	10	M6 x 35	931	10.9	164	1,3
WLA030	30	670	44	76	70	73	54	12	10	M6 x 35	931	10.9	165	1,3
WLA030	32	750	46	76	70	73	54	12	10	M6 x 35	931	10.9	179	1,3
WLA035	33	750	45	80	75	79	62	12	12	M6 x 35	931	10.9	168	1,5
WLA035	35	900	51	80	75	79	62	12	12	M6 x 35	931	10.9	180	1,5
WLA035	37	1050	56	80	75	79	62	12	12	M6 x 35	931	10.9	190	1,5
WLA040	38	1250	65	98	80	84	71	30	8	M8 x 40	931	10.9	175	2,5
WLA040	40	1550	77	98	80	84	71	30	8	M8 x 40	931	10.9	184	2,5
WLA040	43	1850	86	98	80	84	71	30	8	M8 x 40	931	10.9	196	2,5
WLA050	44	2200	100	115	90	94	86	59	8	M10 x 45	931	10.9	189	4
WLA050	50	3300	132	115	90	94	86	59	8	M10 x 45	931	10.9	200	4
WLA050	54	3800	140	115	90	94	86	59	8	M10 x 45	931	10.9	212	4
WLA060	55	4050	147	125	120	124	98	59	10	M10 x 50	931	10.9	177	5,3
WLA060	60	5100	170	125	120	124	98	59	10	M10 x 50	931	10.9	190	5,3
WLA060	64	6100	190	125	120	124	98	59	10	M10 x 50	931	10.9	198	5,3
WLA070	65	6500	200	148	140	142	112	59	12	M10 x 60	931	10.9	172	8,4
WLA070	70	8200	234	148	140	142	112	59	12	M10 x 60	931	10.9	181	8,4
WLA070	74	9000	243	148	140	142	112	59	12	M10 x 60	931	10.9	188	8,4
WLA080	75	10500	280	170	170	175	130	100	12	M12 x 70	931	10.9	73	13,1
WLA080	80	12300	307	170	170	175	130	100	12	M12 x 70	931	10.9	186	13,1
WLA080	84	14000	333	170	170	175	130	100	12	M12 x 70	931	10.9	192	13,1
WLA090	85	14200	334	185	200	202	145	250	7	M16 x 80	931	10.9	166	17
WLA090	90	16400	364	185	200	202	145	250	7	M16 x 80	931	10.9	173	17
WLA090	94	18000	383	185	200	202	145	250	7	M16 x 80	931	10.9	177	17
WLA100	95	19100	402	200	210	215	158	250	9	M16 x 90	931	10.9	186	21
WLA100	100	23100	462	200	210	215	158	250	9	M16 x 90	931	10.9	191	21
WLA100	104	26000	500	200	210	215	158	250	9	M16 x 90	931	10.9	195	21
WLA110	105	28500	542	217	220	222	170	250	12	M16 x 90	931	10.9	214	27
WLA110	110	32000	581	217	220	222	170	250	12	M16 x 90	931	10.9	218	27
WLA110	114	35000	614	217	220	222	170	250	12	M16 x 90	931	10.9	221	27
WLA120	115	38500	669	235	230	235	184	250	13	M16 x 90	931	10.9	199	33
WLA120	120	43500	725	235	230	235	184	250	13	M16 x 90	931	10.9	200	33
WLA120	124	46000	742	235	230	235	184	250	13	M16 x 90	931	10.9	204	33
WLA130	125	47500	760	267	240	242	206	490	10	M20 x 110	931	10.9	196	45
WLA130	130	55000	846	267	240	242	206	490	10	M20 x 110	931	10.9	199	45
WLA130	134	58000	865	267	240	242	206	490	10	M20 x 110	931	10.9	202	45

WLA

Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs (2x)	S	DIN	Class	pw N/mm²	Weight Kg
WLA140	135	62000	918	280	250	252	218	490	11	M20 x 110	931	10.9	194	55
WLA140	140	67000	957	280	250	252	218	490	11	M20 x 110	931	10.9	196	55
WLA140	144	71000	986	280	250	252	218	490	11	M20 x 110	931	10.9	198	55
WLA150	145	73000	1006	302	265	267	230	490	12	M20 x 120	931	10.9	186	70
WLA150	150	78000	1040	302	265	267	230	490	12	M20 x 120	931	10.9	188	70
WLA150	154	82000	1065	302	265	267	230	490	12	M20 x 120	931	10.9	190	70
WLA160	155	82000	1058	315	280	285	242	490	13	M20 x 120	931	10.9	180	80
WLA160	160	88000	1100	315	280	285	242	490	13	M20 x 120	931	10.9	182	80
WLA160	165	97000	1175	315	280	285	242	490	13	M20 x 120	931	10.9	184	80
WLA180	166	108000	1301	345	310	312	265	490	16	M20 x 130	931	10.9	179	105
WLA180	180	132000	1465	345	310	312	265	490	16	M20 x 130	931	10.9	181	105
WLA180	185	140000	1513	345	310	312	265	490	16	M20 x 130	931	10.9	183	105
WLA200	186	153000	1645	375	350	355	295	490	20	M20 x 150	931	10.9	174	135
WLA200	200	184000	1840	375	350	355	295	490	20	M20 x 150	931	10.9	178	135
WLA200	210	204000	1943	375	350	355	295	490	20	M20 x 150	931	10.9	182	135
WLA220	211	214000	2028	410	390	392	320	840	18	M24 x 160	931	10.9	191	180
WLA220	220	240000	2180	410	390	392	320	840	18	M24 x 160	931	10.9	193	180
WLA220	230	260000	2260	410	390	392	320	840	18	M24 x 160	931	10.9	196	180
WLA240	231	280000	2424	435	430	435	350	840	20	M24 x 180	931	10.9	182	210
WLA240	240	305000	2540	435	430	435	350	840	20	M24 x 180	931	10.9	184	210
WLA240	250	334000	2672	435	430	435	350	840	20	M24 x 180	931	10.9	185	210
WLA260	251	390000	3108	515	450	452	380	1250	20	M27 x 200	931	10.9	204	345
WLA260	260	425000	3270	515	450	452	380	1250	20	M27 x 200	931	10.9	206	345
WLA260	270	465000	3444	515	450	452	380	1250	20	M27 x 200	931	10.9	208	345

TAS
SCHÄFER

WLB



Used symbols

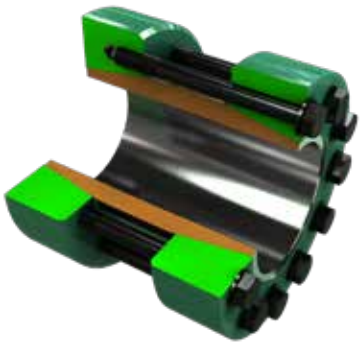
dw	[mm]	Shaft diameter	
M_{max}	[Nm]	max. transmittable torque	F_{ax} = 0
F_{ax}	[kN]	max. transmittable axial force	M_t = 0
D	[mm]	Outer diameter of coupling	
L	[mm]	Length of sleeve	
H	[mm]	Width of shaft coupling	
A	[mm]	Pitch circle diameter of bolting	
M_A		Required tightening torque of clamping screws	
Z		Number of screws	
S		Size of screws	
p_W	[N/mm²]	Average contact pressure on the shaft	

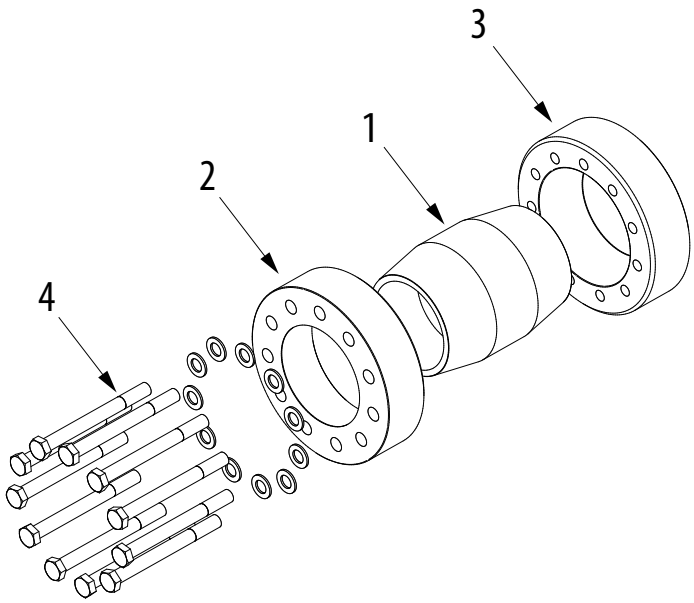
Design of the disc

d < 070	Discs galvanized without washers
d ≥ 070	Discs painted with washers

Dimensions H & e in unlocked position

Pos.	Designation
1	Sleeve
2	Pressure ring G
3	Pressure ring DG
4	Screw





Ordering example: **TAS WLB-Typ/d/D** (e.g: TAS WLB200/150/200 ... further sizes on request)

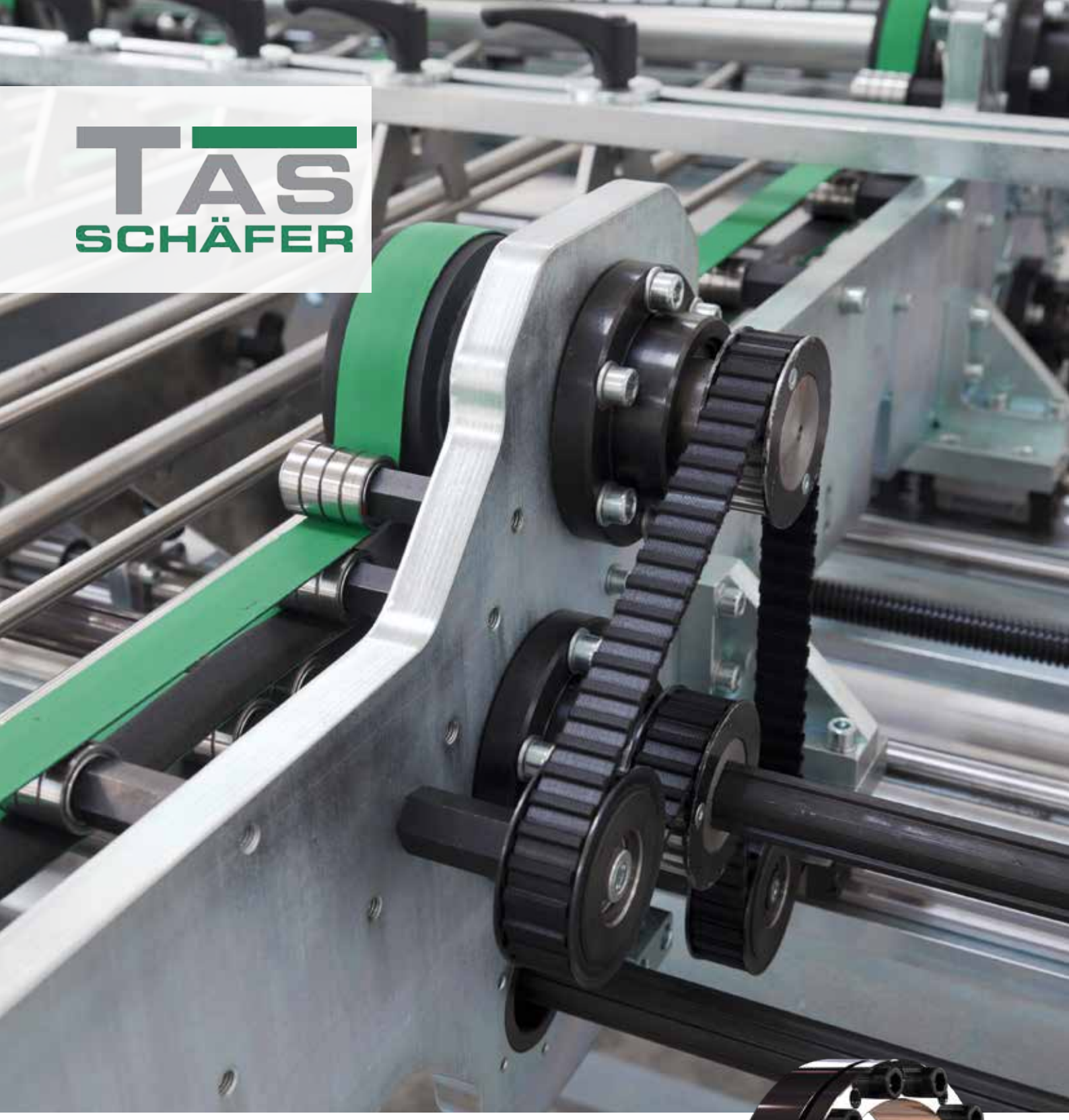
WLB

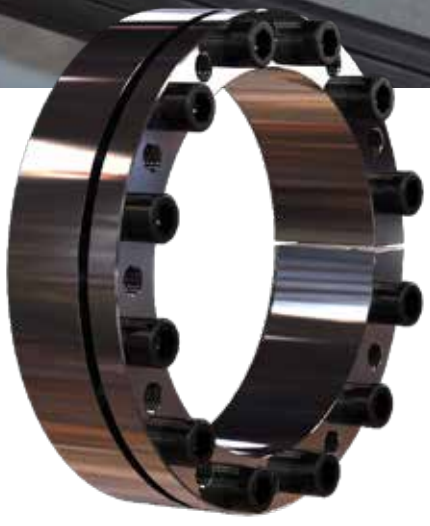
Type	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs.	S	DIN	Class	pw N/mm²	Weight Kg
WLB015	13	70	11	55	50	53	37	6	7	M5 x 45	933	10.9	83	0,5
WLB015	15	150	20	55	50	53	37	6	7	M5 x 45	933	10.9	126	0,5
WLB015	17	180	21	55	50	53	37	6	7	M5 x 45	933	10.9	160	0,5
WLB020	18	200	22	60	54	57	42	12	8	M6 x 50	931	10.9	213	0,7
WLB020	20	270	27	60	54	57	42	12	8	M6 x 50	931	10.9	241	0,7
WLB020	22	350	31	60	54	57	42	12	8	M6 x 50	931	10.9	266	0,7
WLB025	23	370	32	66	62	65	48	12	8	M6 x 55	931	10.9	178	0,8
WLB025	25	470	37	66	62	65	48	12	8	M6 x 55	931	10.9	197	0,8
WLB025	27	600	44	66	62	65	48	12	8	M6 x 55	931	10.9	214	0,8
WLB030	28	540	38	76	70	73	54	12	10	M6 x 60	931	10.9	164	1,3
WLB030	30	670	44	76	70	73	54	12	10	M6 x 60	931	10.9	165	1,3
WLB030	32	750	46	76	70	73	54	12	10	M6 x 60	931	10.9	179	1,3
WLB035	33	750	45	80	75	79	62	12	12	M6 x 65	931	10.9	168	1,5
WLB035	35	900	51	80	75	79	62	12	12	M6 x 65	931	10.9	180	1,5
WLB035	37	1050	56	80	75	79	62	12	12	M6 x 65	931	10.9	190	1,5
WLB040	38	1250	65	98	80	84	71	30	8	M8 x 75	931	10.9	175	2,5
WLB040	40	1550	77	98	80	84	71	30	8	M8 x 75	931	10.9	184	2,5
WLB040	43	1850	86	98	80	84	71	30	8	M8 x 75	931	10.9	196	2,5
WLB050	44	2200	100	115	90	94	86	59	8	M10 x 80	931	10.9	189	4
WLB050	50	3300	132	115	90	94	86	59	8	M10 x 80	931	10.9	200	4
WLB050	54	3800	140	115	90	94	86	59	8	M10 x 80	931	10.9	212	4
WLB060	55	4050	147	125	120	124	98	59	10	M10 x 110	931	10.9	177	5,3
WLB060	60	5100	170	125	120	124	98	59	10	M10 x 110	931	10.9	190	5,3
WLB060	64	6100	190	125	120	124	98	59	10	M10 x 110	931	10.9	198	5,3
WLB070	65	6500	200	148	140	142	112	59	12	M10 x 120	931	10.9	172	8,4
WLB070	70	8200	234	148	140	142	112	59	12	M10 x 120	931	10.9	181	8,4
WLB070	74	9000	243	148	140	142	112	59	12	M10 x 120	931	10.9	188	8,4
WLB080	75	10500	280	170	170	175	130	100	12	M12 x 150	931	10.9	73	13,1
WLB080	80	12300	307	170	170	175	130	100	12	M12 x 150	931	10.9	186	13,1
WLB080	84	14000	333	170	170	175	130	100	12	M12 x 150	931	10.9	192	13,1
WLB090	85	14200	334	185	200	202	145	250	7	M16 x 180	931	10.9	166	17
WLB090	90	16400	364	185	200	202	145	250	7	M16 x 180	931	10.9	173	17
WLB090	94	18000	383	185	200	202	145	250	7	M16 x 180	931	10.9	177	17
WLB100	95	19100	402	200	210	215	158	250	9	M16 x 180	931	10.9	186	21
WLB100	100	23100	462	200	210	215	158	250	9	M16 x 180	931	10.9	191	21
WLB100	104	26000	500	200	210	215	158	250	9	M16 x 180	931	10.9	195	21
WLB110	105	28500	542	217	220	222	170	250	12	M16 x 190	931	10.9	214	27
WLB110	110	32000	581	217	220	222	170	250	12	M16 x 190	931	10.9	218	27
WLB110	114	35000	614	217	220	222	170	250	12	M16 x 190	931	10.9	221	27
WLB120	115	38500	669	235	230	235	184	250	13	M16 x 200	931	10.9	199	33
WLB120	120	43500	725	235	230	235	184	250	13	M16 x 200	931	10.9	200	33
WLB120	124	46000	742	235	230	235	184	250	13	M16 x 200	931	10.9	204	33
WLB130	125	47500	760	267	240	242	206	490	10	M20 x 200	931	10.9	196	45
WLB130	130	55000	846	267	240	242	206	490	10	M20 x 200	931	10.9	199	45
WLB130	134	58000	865	267	240	242	206	490	10	M20 x 200	931	10.9	202	45

WLB

Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs.	S	DIN	Class	pw N/mm²	Weight Kg
WLB140	135	62000	918	280	250	252	218	490	11	M20 x 210	931	10.9	194	55
WLB140	140	67000	957	280	250	252	218	490	11	M20 x 210	931	10.9	196	55
WLB140	144	71000	986	280	250	252	218	490	11	M20 x 210	931	10.9	198	55
WLB150	145	73000	1006	302	265	267	230	490	12	M20 x 220	931	10.9	186	70
WLB150	150	78000	1040	302	265	267	230	490	12	M20 x 220	931	10.9	188	70
WLB150	154	82000	1065	302	265	267	230	490	12	M20 x 220	931	10.9	190	70
WLB160	155	82000	1058	315	280	285	242	490	13	M20 x 230	931	10.9	180	80
WLB160	160	88000	1100	315	280	285	242	490	13	M20 x 230	931	10.9	182	80
WLB160	165	97000	1175	315	280	285	242	490	13	M20 x 230	931	10.9	184	80
WLB180	166	108000	1301	345	310	312	265	490	16	M20 x 250	931	10.9	179	105
WLB180	180	132000	1465	345	310	312	265	490	16	M20 x 250	931	10.9	181	105
WLB180	185	140000	1513	345	310	312	265	490	16	M20 x 250	931	10.9	183	105
WLB200	186	153000	1645	375	350	355	295	490	20	M20 x 280	931	10.9	174	135
WLB200	200	184000	1840	375	350	355	295	490	20	M20 x 280	931	10.9	178	135
WLB200	210	204000	1943	375	350	355	295	490	20	M20 x 280	931	10.9	182	135
WLB220	211	214000	2028	410	390	392	320	840	18	M24 x 320	931	10.9	191	180
WLB220	220	240000	2180	410	390	392	320	840	18	M24 x 320	931	10.9	193	180
WLB220	230	260000	2260	410	390	392	320	840	18	M24 x 320	931	10.9	196	180
WLB240	231	280000	2424	435	430	435	350	840	20	M24 x 340	931	10.9	182	210
WLB240	240	305000	2540	435	430	435	350	840	20	M24 x 340	931	10.9	184	210
WLB240	250	334000	2672	435	430	435	350	840	20	M24 x 340	931	10.9	185	210
WLB260	251	390000	3108	515	450	452	380	1250	20	M27 x 360	931	10.9	204	345
WLB260	260	425000	3270	515	450	452	380	1250	20	M27 x 360	931	10.9	206	345
WLB260	270	465000	3444	515	450	452	380	1250	20	M27 x 360	931	10.9	208	345

TAS SCHÄFER



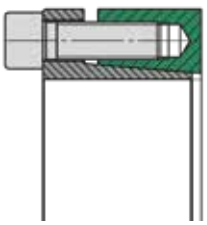


Internal Locking Devices

Shaft-Hub-Connection

Product overview

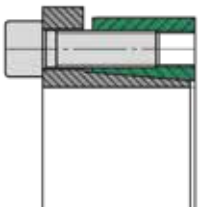
Shaft/ Hub-connections



3003 plus / 3003

For low torque transmission.
For medium bending moments
Short installation lenght

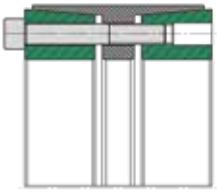
Page 124



3006 plus / 3006

For medium torque transmission.
For medium bending moments
Short installation lenght

Page 128



3012

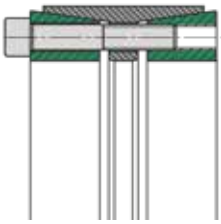
For very high torque transmission.
For high bending moments
Wide installation lenght

Page 132

3014

For high torque transmission
For medium bending moments
Wide installation lenght

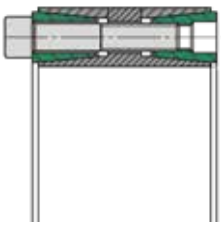
Page 134



RB,3015,3015.1

For medium torque transmission.
For medium bending moments
Average installation lenght

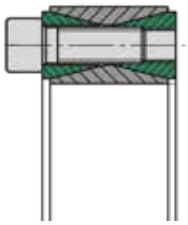
Page 136



3015 DK, 3015.1 DK

For high torque transmission.
For medium bending moments.
Average installation lenght

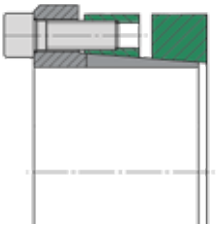
Page 142



3020

For high torque transmission
Low bending moment takes place via the hub Short installation lenght

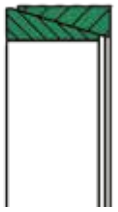
Page 146



4006

For very high torque transmission.
For very high bending moments.
Wide installation lenght (Especially for pulley)

Page 150



8006 (Locking elements)

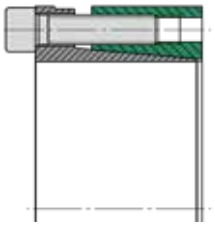
For low torque transmission
Small installation space

Page 154

TAS 110

For medium torque transmission.
For medium bending moments.
Small hub diameter

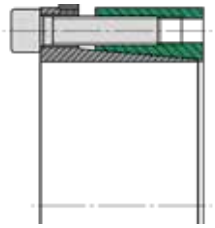
Page 158



TAS 130

For medium torque transmission.
For medium bending moments.
Average installation lenght

Page 160



TAS 131

For medium torque transmission.
For medium bending moments.
Average installation lenght

Page 160

Description of function

Locking devices of the types TAS ...

The main function of a locking assembly is the safe connection of a shaft to a hub by means of friction. For example, between a shaft and a gear hub. The locking assembly creates a play-free connection by expanding between the shaft and the hub. This type of connection is used mainly for transmitting torque.

It is installed by inserting the locking assembly between the components and the subsequent tightening of the screws. By using conical surfaces, the outer diameter increases and the inner diameter reduces. Radial pressure is built up. The clamping forces are provided and controlled by the screws (force-controlled). This allows the direct compensation of the clearance between shaft and hub.

The supplied locking devices are ready for installation.

To achieve proper operation with a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be clean and slightly oiled. Machine oil must be used as a lubricant. The functional surfaces of the locking assembly, threads and screw heads are prepared at the factory with oil film.

Product data

A detailed installation manual is available on our Homepage.

Data sheets

Contact us if a data sheet for an individual product is required.

• For CAD data of couplings, contact us directly, please.

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rolf.gertner@tas-schaefer.de

or

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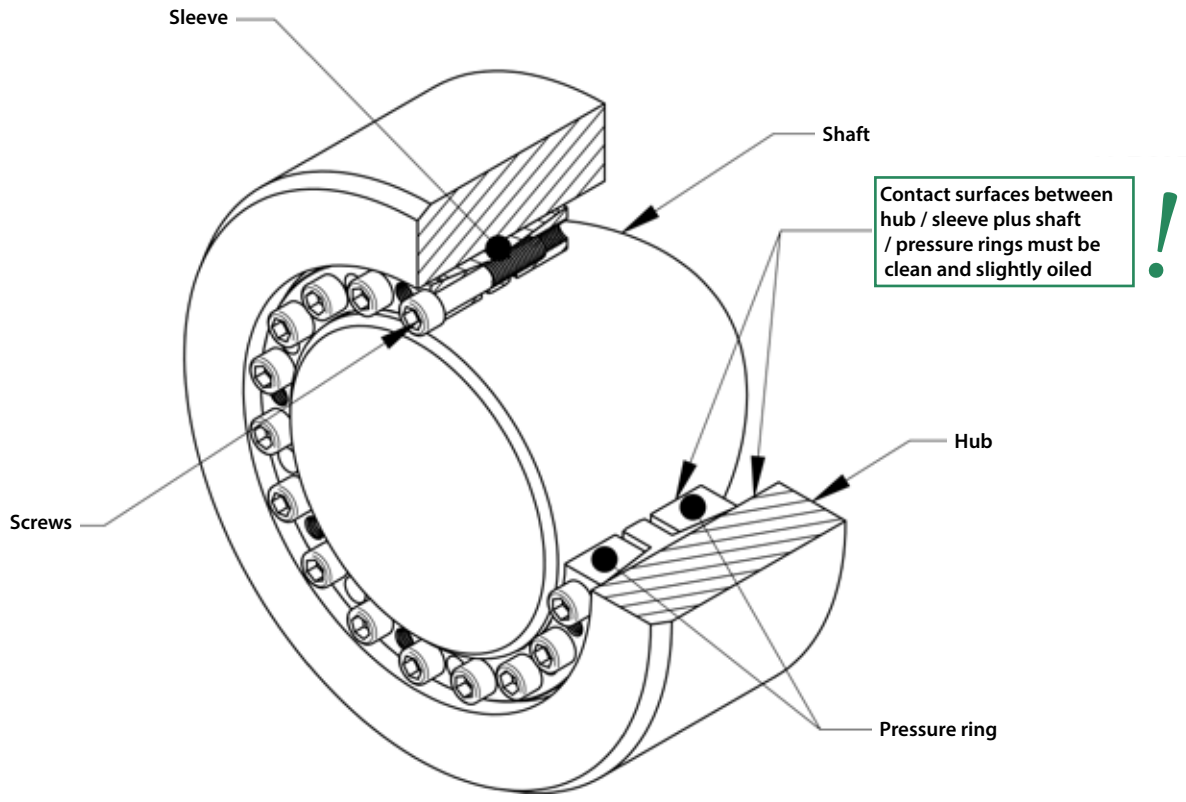


Basic-Design

Clamping length for locking devices

Pressure rings and bush of a locking device must be fully supported on the shaft and in the hub bore.

Tightening torque of the clamping screws

The tightening torque values for screws given in the tables are based on a friction μ_{ges}= 0,14. Basically the specified tightening torque M_A can be reduced to M_{Agew} , to reduce the stresses in the components. When using soft materials, as well as bored shafts, it might become necessary. By reducing M_A , the pressures of P_N and P_W and the transmittable torque M_t are also reduced. The ratio is approximately proportional and can be converted accordingly (approximately):

$$M = \frac{M_{Agew}}{M_A} M_t \quad \text{and} \quad p_{N,W} = \frac{M_{Agew}}{M_A} p_{N,w}$$

The tightening torques can not be reduced arbitrary, therefore apply the following limits:

$$M_{Agew} \geq \left| \begin{array}{l} \text{Class } 8.8 : 0{,}85\ M_A \\ \text{Class } 10.9 : 0{,}70\ M_A \\ \text{Class } 12.9 : 0{,}60\ M_A \end{array} \right| \leq M_A$$

Locking assemblies of type RB, 3015.1 and 3015.1 DK are excluded because they are already provided with reduced values.

Tolerances and surfaces

The values found in the product data, base on surface quality and tolerances according to the tables there. These values are given as recommendations.

Higher surface roughness reduces the transmissible torque and promote unwanted settlings. Larger clearance also reduces the transmissible torque.

In case of significantly differnt values, please contact us!

The calculation of the values, given in the catalog, are based on the following assumptions and simplification:

Transmissible torque

A connection by locking assembly is capable of transmitting torque, bending moment and axial force. Alternatively, the transmissible torque Mmax is specified in the product data. If such loads occur simultaneously, they must be added vectorially to form a resultant moment Mres. For the resultant moment applies:

$$M_{res} \leq M_{max}$$

At different load cases, these are individually checked against M_{max}!

M_{res} is determined for combined load as follows:

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{d_W}{2})^2}$$

*Basically the maximum bending moment corresponds to the maximum transmissible torque. A limitation is due to the change of the surface pressure at the edges of the connection, or by the higher loading of the locking assembly itself. Appropriate limits are found under each product. (See also under „bending moment“)

This results in the following relationships:

Torque only:
The maximum torque is equivalent to M_{max} .

Bending moment only:
The Bending moment coresponds with the indicated portion of M_T , on the product page.

Axial force only:
The maximum axial force is $M_{max} \frac{2}{d_W}$.

Depending on the application, additional safety factors need to be considered for the individual loads!

Basics-Calculation

Radial Force:

Radial forces cause a change in pressure at the contact surface. In the force direction, the pressure increases on one side and is reduced accordingly on the other side. This depends on the amount of radial forceand the rigidity of the parts. The following equation can be used to approximate the pressure change:

$$\Delta p_W = 0{,}75 \frac{F_{AX}}{d_W \, l_K}$$

The modified pressures $p_{Wmin,\,max}$ results from the following equation:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The minimum pressure p_{Wmin} should be at least 30 N/mm² to avoid gap corrosion. In addition, the material must be selected for a maximum pressure p_{Wmax} .

Bending moment

Here the situation is similar to the radial forces. The pressure is greatest at the ends of the connection in this case. Again, the amount and stiffness are important. This leads to the following approximation:

$$\Delta p_{W,\,N} = 4{,}5 \frac{M_B}{d_W \, l_K^2}$$

As before, the modified pressures results from:

$$p_{W,\,N\,min,\,max} = p_{W,\,N} \pm \Delta p_{W,\,N}$$

The conditions for minimum and maximum pressure are the same as before. It should be noted that there could be a change in pressure due to radial force!

Shaft and hub calculation

The catalogue contains information about the generated surface pressure of each locking assembly. Due to the generated radial pressure the hub is deformed, whereupon resilience of the shaft and surface smoothing still has to be added. For solid shafts resilience is negligible but has to be considered for hollow shafts. They are showing greater deformation and therefore greater stresses. This should be considered in addition to the other loads.

The equivalent stresses in the hub can be determined according to various hypotheses such as GEH. On the following pages you will find tables showing required hub sizes, taking pressure, shape and yield strength of hub material into consideration. The shown values for hub sizes are only valid for a solid hub cross-section! The calculation is simplified, includes no additional safety and covers the range of static loads only. Various calculation methods for different cases can be found in mechanical-engineering literature. Specialized software allows the same. For complex geometry reliable results can be determined only by verified FEA.

The minimum yield strength of solid shafts should be at least 2 * PW , the yield point of hub material at least 1 * PN. These values are for orientation only, represent minimum requirements and cannot replace calculations for each application! They also do not release from doing so!

Notch effect

Generally there is a notch effect on the components, caused by the radial pressure of the locking device. This depends mainly on the applied pressure. On the shaft the notch effect is usually much higher than at the hub, as the pressure is higher here. The factors are in the range of 1.2 to 1.8 at the shaft. This can, for example, be mitigated by appropriate design details, such as relief notches.

Bore in the shaft (Hollow shaft)

A large bore d_B in the shaft or use of a hollow shaft, reduces the stiffness of this component against radial pressure. Basically, a bore should not be greater than 0,3 d_W.

Hub-Calculation

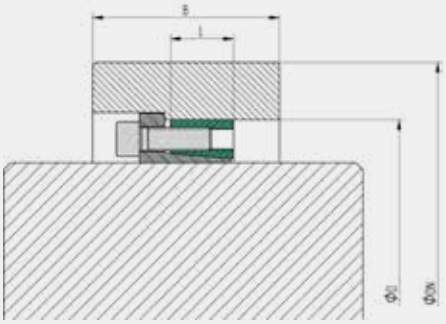
The K-Values can directly be taken from the tables or can be calculated as follows:

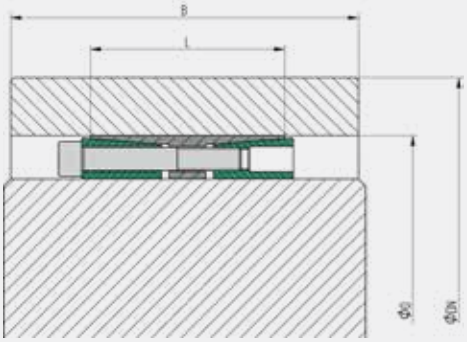
When using TAS Locking assemblies a tension is generated by the surface pressure PN between locking assembly and hub. The required hub diameter is calculated using the same formula, as used for thick-walled hollow cylinder. The real tensions depend on the hub length and shape with respect to the length L of the locking assemblies. Depending on the type of hub, the factor C is taken into account for calculation.

$$D_N \geq D \cdot K \qquad K = \sqrt{\frac{\sigma_{02} + (C \cdot p_n)}{\sigma_{02} - (C \cdot p_n)}}$$

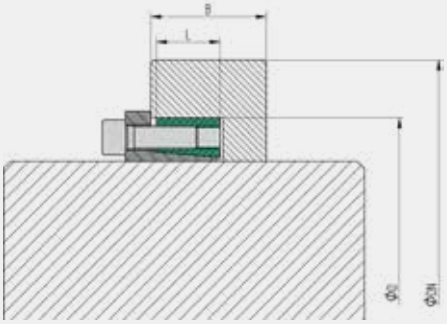
B = ≥ 2 L

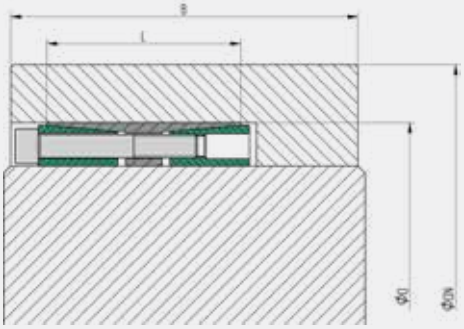
C = 0,6





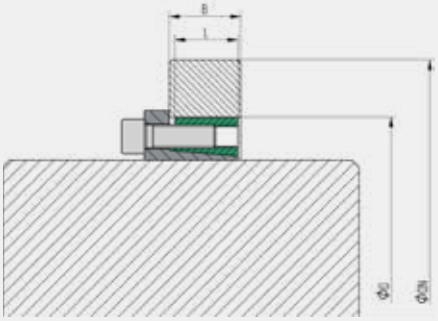
C = 0,8

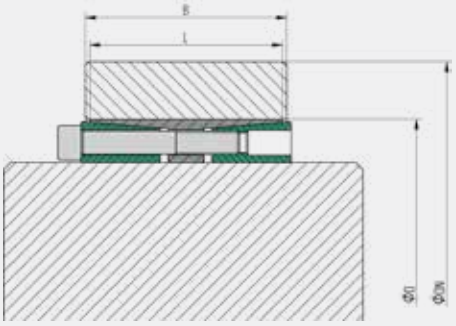




B = ≥ L

C = 1,0





Hub Outside Diameter

p_N N/mm²	K-Factor for hubtype with C = 0,6 Yield strength hubmaterial (N/mm²)										
	150	180	210	240	270	300	330	360	390	420	450
50	1,225	1,184	1,155	1,134	1,119	1,106	1,096	1,088	1,081	1,075	1,070
55	1,251	1,204	1,172	1,149	1,131	1,117	1,106	1,097	1,089	1,082	1,077
60	1,278	1,225	1,190	1,164	1,144	1,129	1,116	1,106	1,097	1,090	1,084
65	1,305	1,247	1,207	1,179	1,157	1,140	1,127	1,115	1,106	1,098	1,091
70	1,334	1,269	1,225	1,194	1,170	1,152	1,137	1,125	1,115	1,106	1,099
75	1,363	1,291	1,244	1,209	1,184	1,164	1,148	1,134	1,123	1,114	1,106
80	1,394	1,315	1,262	1,225	1,197	1,176	1,158	1,144	1,132	1,122	1,114
85	1,425	1,339	1,282	1,241	1,211	1,188	1,169	1,154	1,141	1,130	1,121
90	1,458	1,363	1,301	1,258	1,225	1,200	1,180	1,164	1,150	1,139	1,129
95	1,492	1,389	1,322	1,274	1,240	1,213	1,191	1,174	1,159	1,147	1,136
100	1,528	1,415	1,342	1,291	1,254	1,225	1,202	1,184	1,168	1,155	1,144
105	1,565	1,442	1,363	1,309	1,269	1,238	1,214	1,194	1,177	1,164	1,152
110	1,604	1,469	1,385	1,327	1,284	1,251	1,225	1,204	1,187	1,172	1,160
115	1,645	1,498	1,407	1,345	1,299	1,264	1,237	1,215	1,196	1,181	1,168
120	1,688	1,528	1,430	1,363	1,315	1,278	1,249	1,225	1,206	1,190	1,176
125	1,733	1,559	1,453	1,382	1,331	1,291	1,261	1,236	1,215	1,198	1,184
130	1,780	1,591	1,478	1,402	1,347	1,305	1,273	1,247	1,225	1,207	1,192
135	1,830	1,624	1,502	1,421	1,363	1,319	1,285	1,258	1,235	1,216	1,200
140	1,883	1,659	1,528	1,442	1,380	1,334	1,298	1,269	1,245	1,225	1,208
145	1,940	1,695	1,554	1,462	1,397	1,348	1,310	1,280	1,255	1,234	1,217
150	-	1,733	1,582	1,484	1,415	1,363	1,323	1,291	1,265	1,244	1,225
155	-	1,772	1,610	1,506	1,433	1,378	1,336	1,303	1,276	1,253	1,234
160	-	1,813	1,639	1,528	1,451	1,394	1,350	1,315	1,286	1,262	1,242
165	-	1,856	1,669	1,551	1,469	1,409	1,363	1,327	1,297	1,272	1,251
170	-	1,902	1,700	1,575	1,489	1,425	1,377	1,339	1,308	1,282	1,260
175	-	1,950	1,733	1,599	1,508	1,442	1,391	1,351	1,318	1,291	1,269
180	-	-	1,766	1,624	1,528	1,458	1,405	1,363	1,329	1,301	1,278
185	-	-	1,801	1,650	1,548	1,475	1,420	1,376	1,341	1,311	1,287
190	-	-	1,838	1,677	1,569	1,492	1,434	1,389	1,352	1,322	1,296
195	-	-	1,876	1,704	1,591	1,510	1,449	1,402	1,363	1,332	1,305
200	-	-	1,915	1,733	1,613	1,528	1,464	1,415	1,375	1,342	1,315
205	-	-	1,957	1,762	1,636	1,546	1,480	1,428	1,387	1,353	1,324
210	-	-	-	1,792	1,659	1,565	1,496	1,442	1,399	1,363	1,334
215	-	-	-	1,824	1,683	1,584	1,512	1,455	1,411	1,374	1,344
220	-	-	-	1,856	1,707	1,604	1,528	1,469	1,423	1,385	1,353
225	-	-	-	1,890	1,733	1,624	1,545	1,484	1,435	1,396	1,363
230	-	-	-	1,926	1,759	1,645	1,562	1,498	1,448	1,407	1,373
235	-	-	-	1,962	1,785	1,666	1,579	1,513	1,461	1,419	1,383
240	-	-	-	-	1,813	1,688	1,597	1,528	1,474	1,430	1,394
245	-	-	-	-	1,842	1,710	1,615	1,543	1,487	1,442	1,404
250	-	-	-	-	1,871	1,733	1,633	1,559	1,500	1,453	1,415

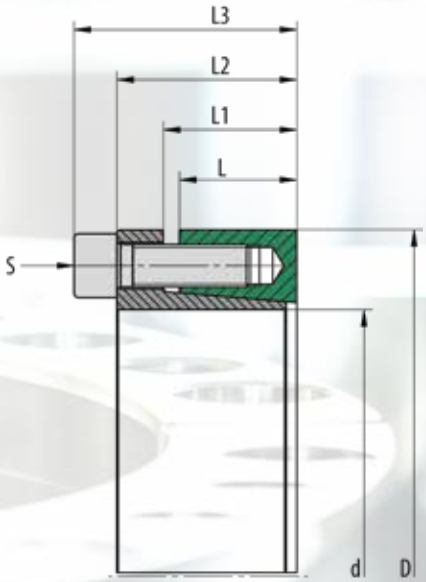
Hub Outside Diameter

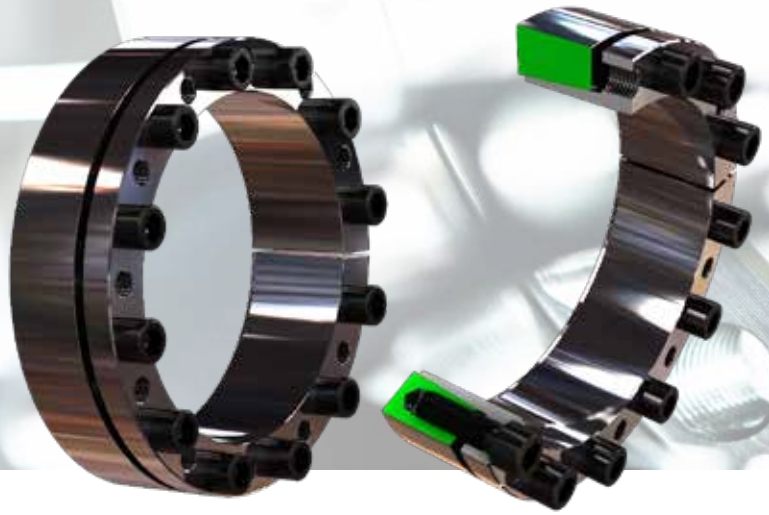
K-Factor for hubtype with C = 0,8											
p_N	Yield strength hubmaterial (N/mm²)										
N/mm²	150	180	210	240	270	300	330	360	390	420	450
50	1,315	1,254	1,213	1,184	1,161	1,144	1,130	1,119	1,109	1,101	1,094
55	1,353	1,284	1,237	1,204	1,179	1,160	1,144	1,131	1,120	1,111	1,104
60	1,394	1,315	1,262	1,225	1,197	1,176	1,158	1,144	1,132	1,122	1,114
65	1,436	1,347	1,288	1,247	1,216	1,192	1,173	1,157	1,144	1,133	1,124
70	1,481	1,380	1,315	1,269	1,235	1,208	1,187	1,170	1,156	1,144	1,134
75	1,528	1,415	1,342	1,291	1,254	1,225	1,202	1,184	1,168	1,155	1,144
80	1,578	1,451	1,370	1,315	1,274	1,242	1,218	1,197	1,181	1,166	1,154
85	1,631	1,489	1,400	1,339	1,294	1,260	1,233	1,211	1,193	1,178	1,165
90	1,688	1,528	1,430	1,363	1,315	1,278	1,249	1,225	1,206	1,190	1,176
95	1,748	1,569	1,461	1,389	1,336	1,296	1,265	1,240	1,219	1,201	1,186
100	1,813	1,613	1,494	1,415	1,358	1,315	1,281	1,254	1,232	1,213	1,197
105	1,883	1,659	1,528	1,442	1,380	1,334	1,298	1,269	1,245	1,225	1,208
110	1,960	1,707	1,563	1,469	1,403	1,353	1,315	1,284	1,259	1,237	1,220
115	2,043	1,759	1,600	1,498	1,427	1,373	1,332	1,299	1,272	1,250	1,231
120	2,135	1,813	1,639	1,528	1,451	1,394	1,350	1,315	1,286	1,262	1,242
125	2,237	1,871	1,679	1,559	1,476	1,415	1,368	1,331	1,300	1,275	1,254
130	2,350	1,934	1,722	1,591	1,502	1,436	1,386	1,347	1,315	1,288	1,266
135	2,479	2,000	1,766	1,624	1,528	1,458	1,405	1,363	1,329	1,301	1,278
140	2,626	2,073	1,813	1,659	1,555	1,481	1,424	1,380	1,344	1,315	1,290
145	2,798	2,151	1,863	1,695	1,584	1,504	1,444	1,397	1,359	1,328	1,302
150	-	2,237	1,915	1,733	1,613	1,528	1,464	1,415	1,375	1,342	1,315
155	-	2,330	1,971	1,772	1,643	1,553	1,485	1,433	1,391	1,356	1,327
160	-	2,434	2,031	1,813	1,675	1,578	1,506	1,451	1,407	1,370	1,340
165	-	2,550	2,094	1,856	1,707	1,604	1,528	1,469	1,423	1,385	1,353
170	-	2,680	2,163	1,902	1,741	1,631	1,550	1,489	1,440	1,400	1,367
175	-	2,829	2,237	1,950	1,776	1,659	1,573	1,508	1,457	1,415	1,380
180	-	-	2,316	2,000	1,813	1,688	1,597	1,528	1,474	1,430	1,394
185	-	-	2,403	2,054	1,852	1,717	1,621	1,548	1,492	1,446	1,408
190	-	-	2,499	2,111	1,892	1,748	1,646	1,569	1,510	1,461	1,422
195	-	-	2,604	2,172	1,934	1,780	1,672	1,591	1,528	1,478	1,436
200	-	-	2,721	2,237	1,978	1,813	1,698	1,613	1,547	1,494	1,451
205	-	-	2,852	2,306	2,024	1,848	1,726	1,636	1,566	1,511	1,466
210	-	-	-	2,381	2,073	1,883	1,754	1,659	1,586	1,528	1,481
215	-	-	-	2,462	2,124	1,921	1,783	1,683	1,606	1,546	1,496
220	-	-	-	2,550	2,179	1,960	1,813	1,707	1,627	1,563	1,512
225	-	-	-	2,646	2,237	2,000	1,844	1,733	1,648	1,582	1,528
230	-	-	-	2,752	2,298	2,043	1,877	1,759	1,670	1,600	1,544
235	-	-	-	2,869	2,364	2,088	1,910	1,785	1,692	1,619	1,561
240	-	-	-	-	2,434	2,135	1,945	1,813	1,715	1,639	1,578
245	-	-	-	-	2,510	2,184	1,982	1,842	1,738	1,659	1,595
250	-	-	-	-	2,592	2,237	2,020	1,871	1,763	1,679	1,613

Hub Outside Diameter

K-Factor for hubtype with C = 1,0											
p_N	Yield strength hubmaterial (N/mm²)										
N/mm²	150	180	210	240	270	300	330	360	390	420	450
50	1,415	1,331	1,275	1,236	1,207	1,184	1,165	1,151	1,138	1,128	1,119
55	1,469	1,372	1,308	1,263	1,230	1,204	1,184	1,167	1,153	1,141	1,131
60	1,528	1,415	1,342	1,291	1,254	1,225	1,202	1,184	1,168	1,155	1,144
65	1,591	1,460	1,378	1,321	1,279	1,247	1,221	1,201	1,184	1,169	1,157
70	1,659	1,508	1,415	1,351	1,304	1,269	1,241	1,218	1,199	1,184	1,170
75	1,733	1,559	1,453	1,382	1,331	1,291	1,261	1,236	1,215	1,198	1,184
80	1,813	1,613	1,494	1,415	1,358	1,315	1,281	1,254	1,232	1,213	1,197
85	1,902	1,671	1,537	1,449	1,386	1,339	1,302	1,273	1,248	1,228	1,211
90	2,000	1,733	1,582	1,484	1,415	1,363	1,323	1,291	1,265	1,244	1,225
95	2,111	1,799	1,629	1,520	1,445	1,389	1,345	1,311	1,283	1,259	1,240
100	2,237	1,871	1,679	1,559	1,476	1,415	1,368	1,331	1,300	1,275	1,254
105	2,381	1,950	1,733	1,599	1,508	1,442	1,391	1,351	1,318	1,291	1,269
110	2,550	2,036	1,789	1,641	1,542	1,469	1,415	1,372	1,337	1,308	1,284
115	2,752	2,131	1,850	1,686	1,577	1,498	1,439	1,393	1,356	1,325	1,299
120	3,000	2,237	1,915	1,733	1,613	1,528	1,464	1,415	1,375	1,342	1,315
125	3,317	2,355	1,986	1,782	1,651	1,559	1,490	1,437	1,395	1,360	1,331
130	3,742	2,490	2,062	1,835	1,691	1,591	1,517	1,460	1,415	1,378	1,347
135	4,359	2,646	2,145	1,890	1,733	1,624	1,545	1,484	1,435	1,396	1,363
140	5,386	2,829	2,237	1,950	1,776	1,659	1,573	1,508	1,457	1,415	1,380
145	7,682	3,048	2,337	2,014	1,823	1,695	1,603	1,533	1,478	1,434	1,397
150	-	3,317	2,450	2,082	1,871	1,733	1,633	1,559	1,500	1,453	1,415
155	-	3,661	2,577	2,156	1,923	1,772	1,665	1,585	1,523	1,474	1,433
160	-	4,124	2,721	2,237	1,978	1,813	1,698	1,613	1,547	1,494	1,451
165	-	4,796	2,887	2,324	2,036	1,856	1,733	1,641	1,571	1,515	1,469
170	-	5,917	3,083	2,421	2,098	1,902	1,768	1,671	1,596	1,537	1,489
175	-	8,427	3,317	2,527	2,165	1,950	1,806	1,701	1,622	1,559	1,508
180	-	-	3,606	2,646	2,237	2,000	1,844	1,733	1,648	1,582	1,528
185	-	-	3,975	2,780	2,314	2,054	1,885	1,765	1,675	1,605	1,548
190	-	-	4,473	2,933	2,398	2,111	1,928	1,799	1,703	1,629	1,569
195	-	-	5,197	3,110	2,490	2,172	1,973	1,835	1,733	1,654	1,591
200	-	-	6,404	3,317	2,592	2,237	2,020	1,871	1,763	1,679	1,613
205	-	-	9,111	3,566	2,704	2,306	2,069	1,910	1,794	1,705	1,636
210	-	-	-	3,873	2,829	2,381	2,122	1,950	1,826	1,733	1,659
215	-	-	-	4,267	2,970	2,462	2,177	1,992	1,860	1,760	1,683
220	-	-	-	4,796	3,131	2,550	2,237	2,036	1,895	1,789	1,707
225	-	-	-	5,568	3,317	2,646	2,300	2,082	1,931	1,819	1,733
230	-	-	-	6,856	3,536	2,752	2,367	2,131	1,969	1,850	1,759
235	-	-	-	9,747	3,799	2,869	2,439	2,182	2,009	1,882	1,785
240	-	-	-	-	4,124	3,000	2,517	2,237	2,050	1,915	1,813
245	-	-	-	-	4,539	3,148	2,601	2,294	2,093	1,950	1,842
250	-	-	-	-	5,100	3,317	2,693	2,355	2,139	1,986	1,871

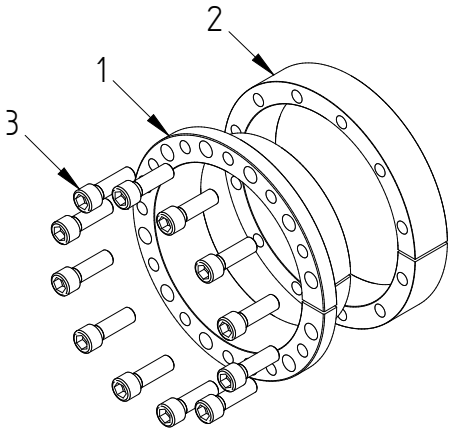
3003 plus





Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the pressure ring	
L_1	[mm]	Distance of the pressure ring	
L_2	[mm]	Width of the locking device without screws	
L_3	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring
3	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

More properties

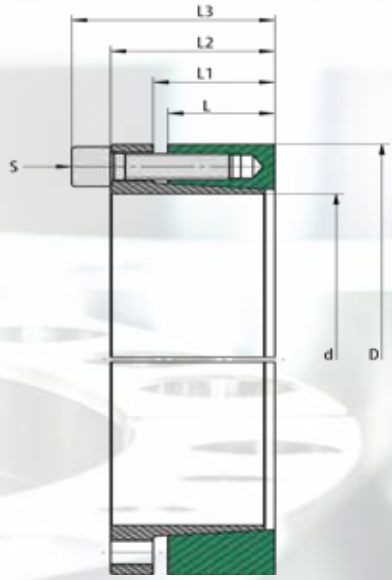
- axial displacement during assembly
- good self-centering
- low self-locking

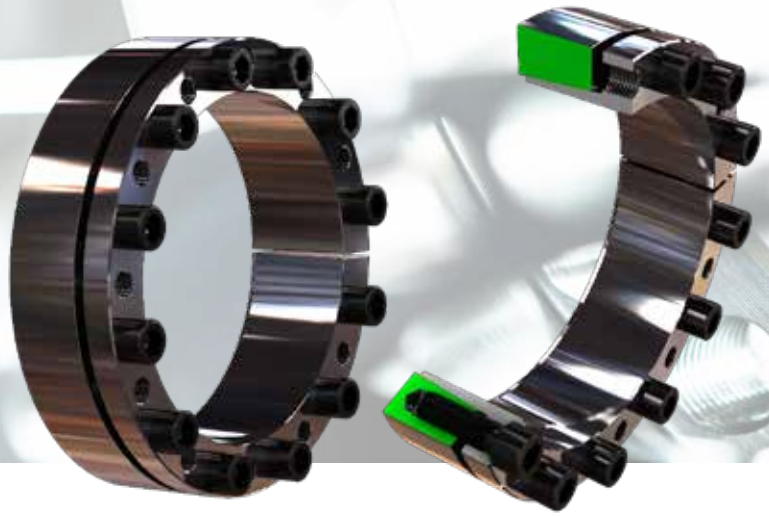
Ordering information: TAS 3003/d/D plus (e.g: TAS 3003/150/200 plus ... further sizes on request)

3003 plus

d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	L_3 mm	Weight kg
20	x	**47**	360	36	281	119	5	M6 x 020	14	17	22	28	34	0,2
22	x	**47**	390	36	255	119	5	M6 x 020	14	17	22	28	34	0,25
24	x	**50**	430	36	234	112	5	M6 x 020	14	17	22	28	34	0,3
25	x	**50**	540	43	270	135	6	M6 x 020	14	17	22	28	34	0,3
28	x	**55**	600	43	241	123	6	M6 x 020	14	17	22	28	34	0,4
30	x	**55**	640	43	225	123	6	M6 x 020	14	17	22	28	34	0,35
32	x	**60**	920	58	281	150	8	M6 x 020	14	17	22	28	34	0,4
35	x	**60**	1000	58	257	150	8	M6 x 020	14	17	22	28	34	0,38
38	x	**65**	1000	58	236	138	8	M6 x 020	14	17	22	30	36	0,45
40	x	**65**	1100	58	225	138	8	M6 x 020	14	17	22	30	36	0,4
45	x	**75**	2400	110	325	195	8	M8 x 025	35	20	25	34	42	0,7
50	x	**80**	2700	110	293	183	8	M8 x 025	35	20	25	34,5	42,5	0,75
55	x	**85**	3000	110	266	172	8	M8 x 025	35	20	25	34,5	42,5	0,8
60	x	**90**	3300	110	244	163	8	M8 x 025	35	20	25	34,5	42,5	0,8
65	x	**95**	4000	124	253	173	9	M8 x 025	35	20	25	34,5	42,5	0,9
70	x	**110**	6000	173	274	174	8	M10 x 030	69	24	29	41	51	1,6
75	x	**115**	6500	173	255	167	8	M10 x 030	69	24	29	41	51	1,7
80	x	**120**	6900	173	239	160	8	M10 x 030	69	24	29	41	51	1,8
85	x	**125**	8200	195	254	172	9	M10 x 030	69	24	29	41	51	1,9
90	x	**130**	8700	195	239	166	9	M10 x 030	69	24	29	41	51	2,0
95	x	**135**	10200	217	252	177	10	M10 x 030	69	24	29	41	51	2,0
100	x	**145**	14200	285	291	201	9	M12 x 035	120	26	31	46	58	2,8
110	x	**155**	15600	285	265	188	9	M12 x 035	120	26	31	46	58	3,0
120	x	**165**	17100	285	242	176	9	M12 x 035	120	26	32	46	58	3,2
130	x	**180**	25100	387	232	168	9	M14 x 040	190	34	40	57	71	4,7
140	x	**190**	27100	387	216	159	9	M14 x 040	190	34	40	57	71	5,0
150	x	**200**	32200	430	224	168	10	M14 x 040	190	34	40	57	71	5,4
160	x	**210**	41200	516	252	192	12	M14 x 040	190	34	40	57	71	5,6
170	x	**225**	43800	516	183	138	12	M14 x 040	190	44	50	67	81	7,9
180	x	**235**	46400	516	173	132	12	M14 x 040	190	44	50	67	81	8,3
190	x	**250**	67800	714	227	172	12	M16 x 050	295	44	50	67,5	83,5	10,0
200	x	**260**	71300	714	215	166	12	M16 x 050	295	44	50	67,5	83,5	10,5
220	x	**285**	78500	714	172	133	12	M16 x 050	295	50	56	76	92	14,2
240	x	**305**	107000	892	197	155	15	M16 x 050	295	50	56	76	92	15,2
260	x	**325**	139000	1071	219	175	18	M16 x 050	295	50	56	76	92	16,4
280	x	**355**	159000	1136	179	141	16	M18 x 060	405	60	66	88	106	23,9
300	x	**375**	191000	1278	188	151	18	M18 x 060	405	60	66	88	106	25,6
320	x	**405**	265000	1660	186	147	18	M20 x 060	580	74	81	104	124	36,9
340	x	**425**	329000	1937	204	163	21	M20 x 060	580	74	81	104	124	38,9
360	x	**455**	374000	2081	178	141	18	M22 x 060	780	86	94	120	142	53,5
380	x	**475**	461000	2428	197	158	21	M22 x 060	780	86	94	120	142	56,1
400	x	**495**	485000	2428	187	151	21	M22 x 060	780	86	94	120	142	58,7

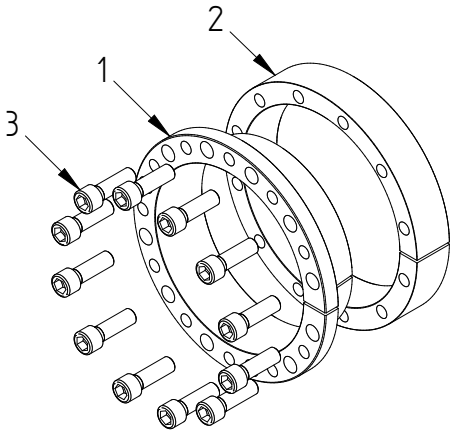
3003





Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the pressure ring	
L_1	[mm]	Distance of the pressure ring	
L_2	[mm]	Width of the locking device without screws	
L_3	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring
3	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

More properties

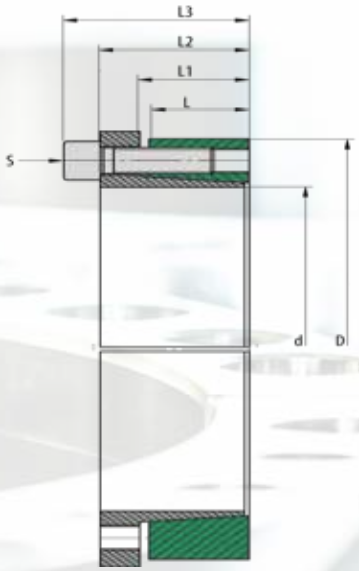
- axial displacement during assembly
- good self-centering
- low self-locking

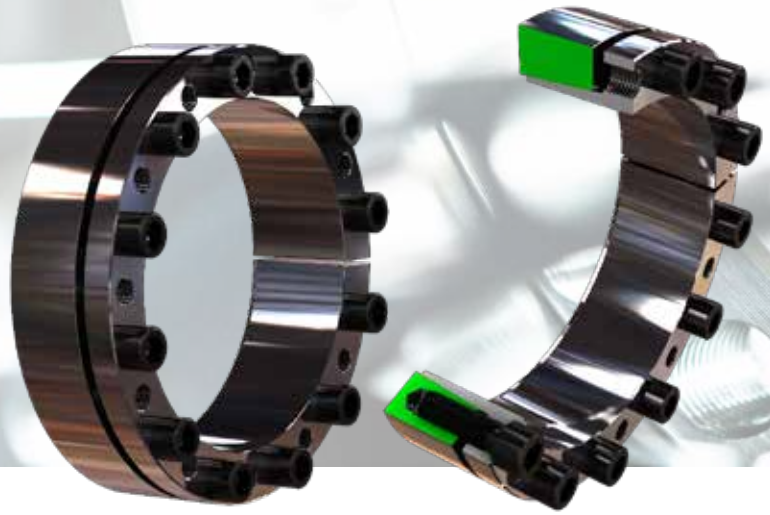
Ordering information: TAS 3003/d/D (e.g: TAS 3003/150/200 ... further sizes on request)

3003

d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	L_3 mm	Weight kg
20	x	**47**	410	41	320	136	6	M6 x 020	14	17	22	28	34	0,26
22	x	**47**	450	41	290	136	6	M6 x 020	14	17	22	28	34	0,24
24	x	**50**	490	41	265	127	6	M6 x 020	14	17	22	28	34	0,27
25	x	**50**	510	41	255	127	6	M6 x 020	14	17	22	28	34	0,27
28	x	**55**	570	41	227	116	6	M6 x 020	14	17	22	28	34	0,32
30	x	**55**	610	41	212	115	6	M6 x 020	14	17	22	28	34	0,30
32	x	**60**	880	55	268	143	8	M6 x 020	14	17	22	28	34	0,37
35	x	**60**	960	55	245	143	8	M6 x 020	14	17	22	28	34	0,34
38	x	**65**	1000	53	216	126	8	M6 x 020	14	17	22	28	34	0,43
40	x	**65**	1100	55	215	132	8	M6 x 020	14	17	22	28	34	0,40
42	x	**75**	2200	105	331	185	8	M8 x 025	35	20	25	33	41	0,68
45	x	**75**	2400	107	314	189	8	M8 x 025	35	20	25	33	41	0,64
48	x	**80**	2500	104	288	173	8	M8 x 025	35	20	24	33,5	41	0,73
50	x	**80**	2600	104	276	172	8	M8 x 025	35	20	24	33,5	41	0,71
55	x	**85**	2900	105	254	165	8	M8 x 025	35	20	24	33,5	41	0,76
60	x	**90**	3100	103	228	152	8	M8 x 025	35	20	24	33,5	41	0,82
65	x	**95**	3400	105	213	146	8	M8 x 025	35	20	24	33,5	41	0,87
70	x	**110**	6000	171	271	172	8	M10 x 030	70	24	29	40	50	1,6
75	x	**115**	6400	171	252	164	8	M10 x 030	70	24	29	40	50	1,7
80	x	**120**	6800	170	235	157	8	M10 x 030	70	24	29	40	50	1,8
85	x	**125**	9000	212	275	187	10	M10 x 030	70	24	29	40	50	1,9
90	x	**130**	9600	213	262	181	10	M10 x 030	70	24	29	40	50	2,0
95	x	**135**	10200	215	250	176	10	M10 x 030	70	24	29	40	50	2,0
100	x	**145**	12000	240	245	169	8	M12 x 035	115	26	31	44	56	2,8
110	x	**155**	13000	236	219	156	8	M12 x 035	115	26	31	44	56	3,0
120	x	**165**	16000	267	227	165	9	M12 x 035	115	26	31	44	56	3,2
130	x	**180**	23000	354	212	153	12	M12 x 035	115	34	39	52	68	4,9
140	x	**190**	25000	357	199	147	9	M14 x 040	185	34	39	54	68	5,2
150	x	**200**	30000	400	208	156	10	M14 x 040	185	34	39	54	68	5,5
160	x	**210**	38800	485	236	180	12	M14 x 040	185	34	39	54	68	5,8
170	x	**225**	41300	486	172	130	12	M14 x 040	185	44	49	64	78	8,2
180	x	**235**	43700	486	163	125	12	M14 x 040	185	44	49	64	78	8,6
190	x	**250**	57700	607	193	146	15	M14 x 040	185	44	49	64	78	10,0
200	x	**260**	60700	607	183	141	15	M14 x 040	185	44	49	64	78	10,5

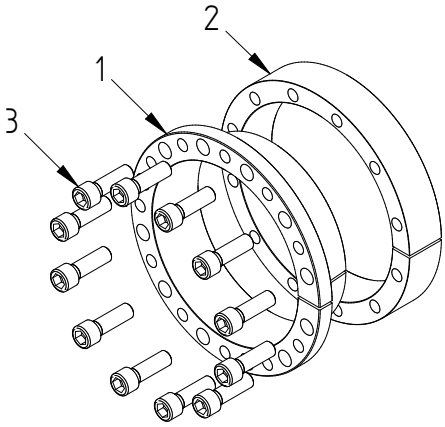
3006 plus





Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the pressure ring	
L_1	[mm]	Distance of the pressure ring	
L_2	[mm]	Width of the locking device without screws	
L_3	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring
3	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

More properties

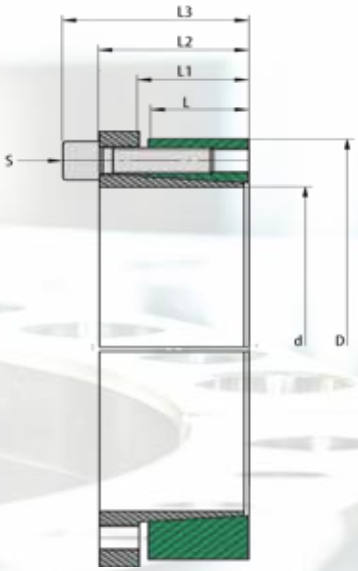
- axial displacement during assembly
- good self-centering
- low self-locking

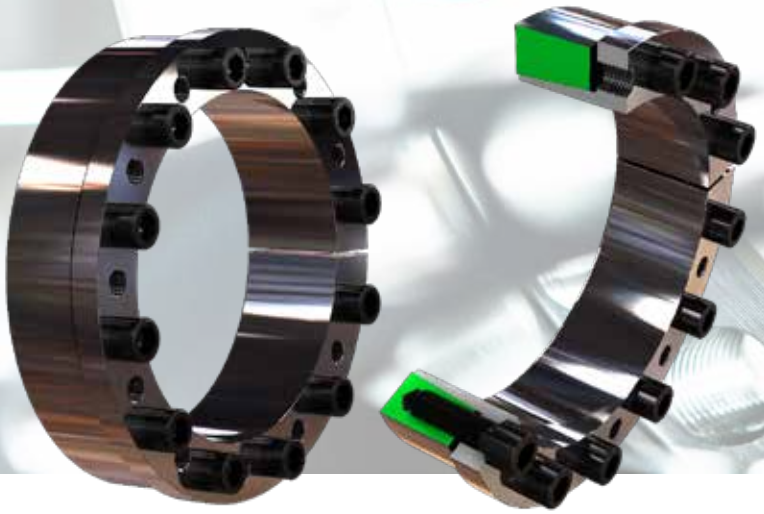
Ordering information: TAS 3006/d/D plus (e.g: TAS 3006/150/200 plus ... further sizes on request)

3006 plus

d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs	S	M_A Nm	L mm	L_1 mm	L_2 mm	L_3 mm	Weight kg
20	x	**47**	260	27	208	88	5	M6 x 020	17	17	22	30	36	0,3
22	x	**47**	290	27	189	88	5	M6 x 020	17	17	22	30	36	0,3
24	x	**50**	310	27	173	83	5	M6 x 020	17	17	22	30	36	0,35
25	x	**50**	390	32	199	100	6	M6 x 020	17	17	22	30	36	0,3
28	x	**55**	440	32	178	91	6	M6 x 020	17	17	22	28	34	0,4
30	x	**55**	470	32	166	91	6	M6 x 020	17	17	22	30	36	0,35
32	x	**60**	680	43	208	111	8	M6 x 020	17	17	22	28	34	0,4
35	x	**60**	740	43	190	111	8	M6 x 020	17	17	22	30	36	0,4
38	x	**65**	800	43	175	102	8	M6 x 020	17	17	22	30	36	0,5
40	x	**65**	850	43	166	102	8	M6 x 020	17	17	22	30	36	0,40
45	x	**75**	1700	79	232	139	8	M8 x 025	41	20	25	34	42	0,8
50	x	**80**	1900	79	209	131	8	M8 x 025	41	20	25	34	42	0,8
55	x	**85**	2100	79	190	123	8	M8 x 025	41	20	25	34	42	0,75
60	x	**90**	2300	79	174	116	8	M8 x 025	41	20	25	34	42	0,95
65	x	**95**	2800	89	181	124	9	M8 x 025	41	20	25	34	42	1,0
70	x	**110**	4500	130	205	131	8	M10 x 030	83	24	29	41	51	1,8
75	x	**115**	4800	130	192	125	8	M10 x 030	83	24	30	42	52	1,9
80	x	**120**	5100	130	180	120	8	M10 x 030	83	24	30	41	51	2,0
85	x	**125**	6200	146	190	129	9	M10 x 030	83	24	30	41	51	2,1
90	x	**130**	6500	146	180	124	9	M10 x 030	83	24	29	41	51	2,2
95	x	**135**	7700	162	189	133	10	M10 x 030	83	24	29	41	51	2,3
100	x	**145**	10800	216	220	152	9	M12 x 035	145	26	32	46	58	3,0
110	x	**155**	11800	216	200	142	9	M12 x 035	145	26	32	46	58	3,2
120	x	**165**	12900	216	184	134	9	M12 x 035	145	26	31	46	58	3,4
130	x	**180**	18800	290	174	126	9	M14 x 040	230	34	40	57	71	5,1
140	x	**190**	20200	290	162	119	9	M14 x 040	230	34	40	57	71	5,4
150	x	**200**	24100	322	168	126	10	M14 x 040	230	34	40	57	71	5,8
160	x	**210**	30900	387	189	144	12	M14 x 040	230	34	40	57	71	6,0
170	x	**225**	32800	387	137	104	12	M14 x 040	230	44	50	67	81	8,3
180	x	**235**	34700	387	129	99	12	M14 x 040	230	44	50	67	81	8,8
190	x	**250**	50400	531	168	128	12	M16 x 050	355	44	50	67	83	10,3
200	x	**260**	53000	531	160	123	12	M16 x 050	355	44	50	67	83	10,8
220	x	**285**	58300	531	128	99	12	M16 x 050	355	50	56	75	91	14,8
240	x	**305**	79500	663	147	115	15	M16 x 050	355	50	56	75	91	16,0
260	x	**325**	103000	796	162	130	18	M16 x 050	355	50	56	76	93	17,2
280	x	**355**	120000	858	135	107	16	M18 x 060	485	60	66	87	105	25,0
300	x	**375**	144000	965	142	114	18	M18 x 060	485	60	66	87	105	26,4
320	x	**405**	198000	1241	139	110	18	M20 x 060	690	74	81	104	124	36,85
340	x	**425**	246000	1447	153	122	21	M20 x 060	690	74	81	104	124	38,89
360	x	**455**	278000	1548	133	105	18	M22 x 060	930	86	94	120	142	53,46
380	x	**475**	343000	1805	147	117	21	M22 x 060	930	86	94	120	142	56,09
400	x	**495**	361000	1805	139	112	21	M22 x 060	930	86	94	120	142	58,71

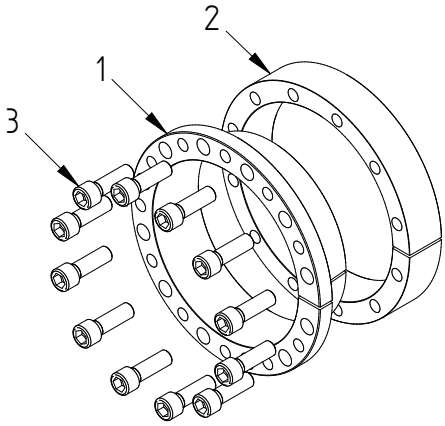
3006





Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the pressure ring	
L_1	[mm]	Distance of the pressure ring	
L_2	[mm]	Width of the locking device without screws	
L_3	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring
3	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

More properties

- axial displacement during assembly
- good self-centering
- low self-locking

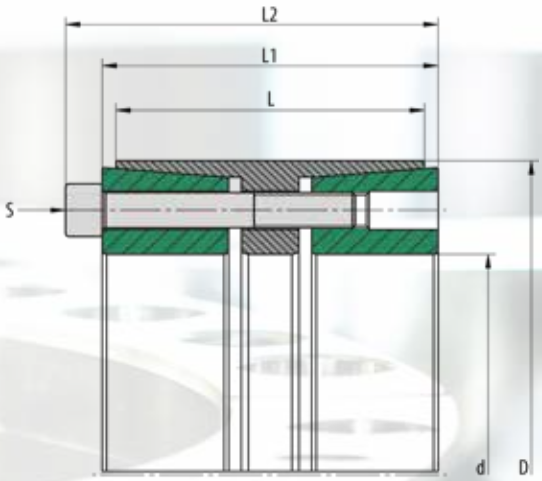
Ordering information: TAS 3006/d/D (e.g: TAS 3006/150/200 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

3006

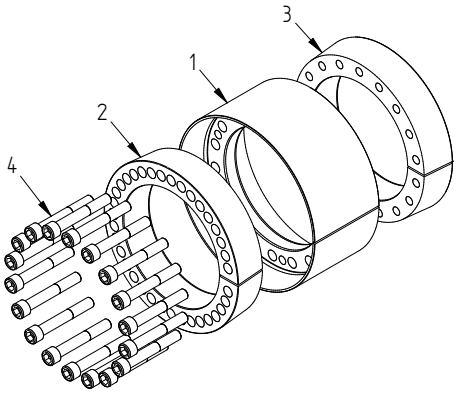
d mm		D mm	D1 mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	L_3 mm	Weight kg
20	x	**47**	53	320	32	250	106	6	M6 x 020	17	17	22	28	34	0,28
22	x	**47**	53	350	32	226	106	6	M6 x 020	17	17	22	28	34	0,27
24	x	**50**	56	390	33	211	101	6	M6 x 020	17	17	22	28	34	0,30
25	x	**50**	56	400	32	200	100	6	M6 x 020	17	17	22	28	34	0,29
28	x	**55**	61,4	450	32	179	91	6	M6 x 020	17	17	22	28	34	0,32
30	x	**55**	61,4	490	33	170	93	6	M6 x 020	17	17	22	28	34	0,33
32	x	**60**	67	700	44	213	114	8	M6 x 020	17	17	22	28	34	0,37
35	x	**60**	67	760	43	194	113	8	M6 x 020	17	17	22	28	34	0,37
38	x	**65**	72	820	43	177	104	8	M6 x 020	17	17	22	28	34	0,43
40	x	**65**	72	870	44	170	104	8	M6 x 020	17	17	22	28	34	0,40
42	x	**75**	84	1700	81	256	143	8	M8 x 025	41	20	25	33	41	0,69
45	x	**75**	84	1800	80	236	141	8	M8 x 025	41	20	25	33	41	0,64
48	x	**80**	89	1900	79	219	131	8	M8 x 025	41	20	24	33,5	41	0,74
50	x	**80**	89	2000	80	212	133	8	M8 x 025	41	20	24	33,5	41	0,70
55	x	**85**	94	2200	80	193	125	8	M8 x 025	41	20	24	33,5	41	0,75
60	x	**90**	99	2400	80	177	118	8	M8 x 025	41	20	24	33,5	41	0,80
65	x	**95**	104	2600	80	163	112	8	M8 x 025	41	20	24	33,5	41	0,86
70	x	**110**	119	4600	131	208	132	8	M10 x 030	83	24	29	40	50	1,60
75	x	**115**	124	5000	133	196	128	8	M10 x 030	83	24	29	40	50	1,69
80	x	**120**	129	5300	133	183	122	8	M10 x 030	83	24	29	40	50	1,73
85	x	**125**	134	7000	165	214	146	10	M10 x 030	83	24	29	40	50	1,81
90	x	**130**	139	7400	164	202	140	10	M10 x 030	83	24	29	40	50	1,95
95	x	**135**	144	7800	164	191	134	10	M10 x 030	83	24	29	40	50	2,04
100	x	**145**	154	9700	194	198	136	8	M12 x 035	145	26	31	44	56	2,72
110	x	**155**	164	10700	195	180	128	8	M12 x 035	145	26	31	44	56	2,94
120	x	**165**	174	13100	218	186	135	9	M12 x 035	145	26	31	44	56	3,24
130	x	**180**	189	19000	292	175	127	12	M12 x 035	145	34	39	52	68	4,87
140	x	**190**	199	20500	293	163	120	9	M14 x 040	230	34	39	54	68	5,19
150	x	**200**	209	24500	327	170	127	10	M14 x 040	230	34	39	54	68	5,50
160	x	**210**	219	31300	391	191	145	12	M14 x 040	230	34	39	54	68	5,82
170	x	**225**	234	33200	391	139	105	12	M14 x 040	230	44	49	64	78	8,17
180	x	**235**	244	35000	389	130	100	12	M14 x 040	230	44	49	64	78	8,58
190	x	**250**	259	46500	489	155	118	15	M14 x 040	230	44	49	64	78	9,93
200	x	**260**	269	49000	490	148	114	15	M14 x 040	230	44	49	64	78	10,38

3012



Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
M_t	[Nm]	Max. transmittable torque $F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force $M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft
p_N	[N/mm²]	Average pressure on the hub
L	[mm]	Lenght of the sleeve
L_1	[mm]	Width of the locking device without screws
L_2	[mm]	Width of the locking device with screws
Z		Number of clamping screws
S		Size of the clamping screws
M_A	[Nm]	Tightening torque of the clamping screws



Pos.	Benennung
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,4 * M_t
Bending angle	max. 5´

More properties

- low axial displacement during assembly
- very good self-centering
- high self-locking

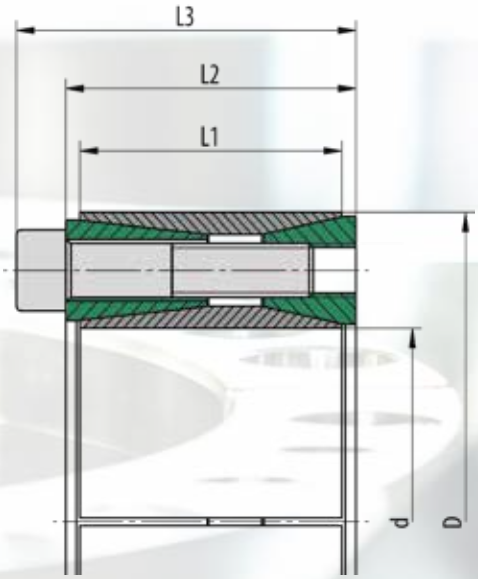
Ordering information: TAS 3012/d/D (e.g: TAS 3012/150/200 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

3012

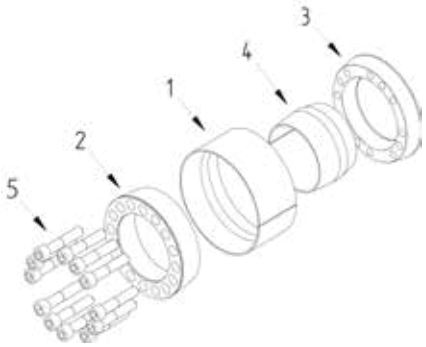
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
25	**x**	**50**	660	53	153	63	5	M6 x 045	17	45	53	59	0,5
30	**x**	**55**	950	64	153	68	6	M6 x 045	17	45	55	61	0,6
35	**x**	**60**	1300	75	153	73	7	M6 x 045	17	45	55	61	0,6
38	**x**	**65**	1600	85	161	77	8	M6 x 045	17	45	55	61	0,7
40	**x**	**65**	1700	85	153	77	8	M6 x 045	17	45	55	61	0,7
45	**x**	**75**	3100	138	239	111	7	M8 x 050	41	44	54	62	1,0
50	**x**	**80**	3900	158	190	93	8	M8 x 050	41	56	64	72	1,2
55	**x**	**85**	4800	177	194	99	9	M8 x 050	41	56	64	72	1,3
60	**x**	**90**	5900	197	198	104	10	M8 x 050	41	56	64	72	1,4
65	**x**	**95**	6400	197	183	98	10	M8 x 050	41	56	64	72	1,5
70	**x**	**110**	11300	325	220	112	10	M10 x 060	83	70	78	88	2,8
80	**x**	**120**	14200	357	212	113	11	M10 x 060	83	70	78	88	3,1
90	**x**	**130**	17500	390	205	114	12	M10 x 060	83	70	78	88	3,4
100	**x**	**145**	26400	528	200	107	11	M12 x 080	145	90	100	112	5,5
110	**x**	**155**	31600	576	198	110	12	M12 x 080	145	90	100	112	5,9
120	**x**	**165**	40300	672	212	120	14	M12 x 080	145	90	100	112	7,1
130	**x**	**180**	50200	773	188	110	12	M14 x 090	230	104	116	130	9,0
140	**x**	**190**	63100	902	203	121	14	M14 x 090	230	104	116	130	9,4
150	**x**	**200**	72400	966	203	123	15	M14 x 090	230	104	116	130	10,0
160	**x**	**210**	82400	1031	203	125	16	M14 x 090	230	104	118	132	10,6
170	**x**	**225**	105000	1238	176	109	14	M16 x 110	355	134	146	162	16,1
180	**x**	**235**	119000	1327	178	112	15	M16 x 110	355	134	146	162	16,8
190	**x**	**250**	134000	1415	180	112	16	M16 x 110	355	134	146	162	19,7
200	**x**	**260**	141000	1415	171	108	16	M16 x 110	355	134	146	162	22,8
220	**x**	**285**	175000	1592	174	111	18	M16 x 110	355	134	146	162	24,8
240	**x**	**305**	212000	1769	178	115	20	M16 x 110	355	134	146	162	26,6
260	**x**	**325**	229000	1769	164	108	20	M16 x 110	355	134	146	162	38,8
280	**x**	**355**	347000	2481	178	112	18	M20 x 130	690	165	177	197	42,8
300	**x**	**375**	413000	2757	185	118	20	M20 x 130	690	165	177	197	45,4
320	**x**	**405**	463000	2895	182	115	21	M20 x 130	690	165	177	197	62,7
340	**x**	**425**	515000	3033	174	115	22	M20 x 130	690	165	177	197	66,1
360	**x**	**455**	649000	3611	174	111	21	M22 x 150	930	190	202	224	90,7
380	**x**	**475**	718000	3783	173	111	22	M22 x 150	930	190	202	224	95,1
400	**x**	**495**	825000	4127	179	116	24	M22 x 150	930	190	202	224	100
420	**x**	**515**	866000	4127	170	112	24	M22 x 150	930	190	202	224	104
440	**x**	**535**	907000	4127	163	108	24	M22 x 150	930	190	202	224	109
460	**x**	**555**	949000	4127	156	104	24	M22 x 150	930	190	202	224	113
480	**x**	**575**	1155000	4814	174	117	28	M22 x 150	930	190	202	224	117
500	**x**	**595**	1203000	4814	167	113	28	M22 x 150	930	190	202	224	122
520	**x**	**615**	1341000	5158	172	117	30	M22 x 150	930	190	202	224	126
540	**x**	**635**	1437000	5325	171	117	30	M22 x 150	930	190	202	224	131
560	**x**	**655**	1590000	5680	176	121	32	M22 x 150	930	190	202	224	135
580	**x**	**675**	1698000	5857	175	121	33	M22 x 150	930	190	202	224	140
600	**x**	**695**	1757000	5857	169	118	33	M22 x 150	930	190	202	224	144
620	**x**	**715**	1870000	6035	169	118	34	M22 x 150	930	190	202	224	149

3014



Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
M_t	[Nm]	Max. transmittable torque $F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force $M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft
p_N	[N/mm²]	Average pressure on the hub
L_1	[mm]	Lenght of the sleeve inside and outside
L_2	[mm]	Width of the locking device without screws
L_3	[mm]	Width of the locking device with screws
Z		Number of clamping screws
S		Size of the clamping screws
M_A	[Nm]	Tightening torque of the clamping screws



Pos.	Designation
1	Sleeve outside
2	Pressure ring 1
3	Pressure ring 2
4	Sleeve inside
5	Screw

Recommended tolerances & surfaces

Shaft	k9-h9 / Rz10
Hub	N9-H9 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

In order to be able to dismantle these clamping sets, the back pressure ring pos. 3 must bear against a stop !

More properties

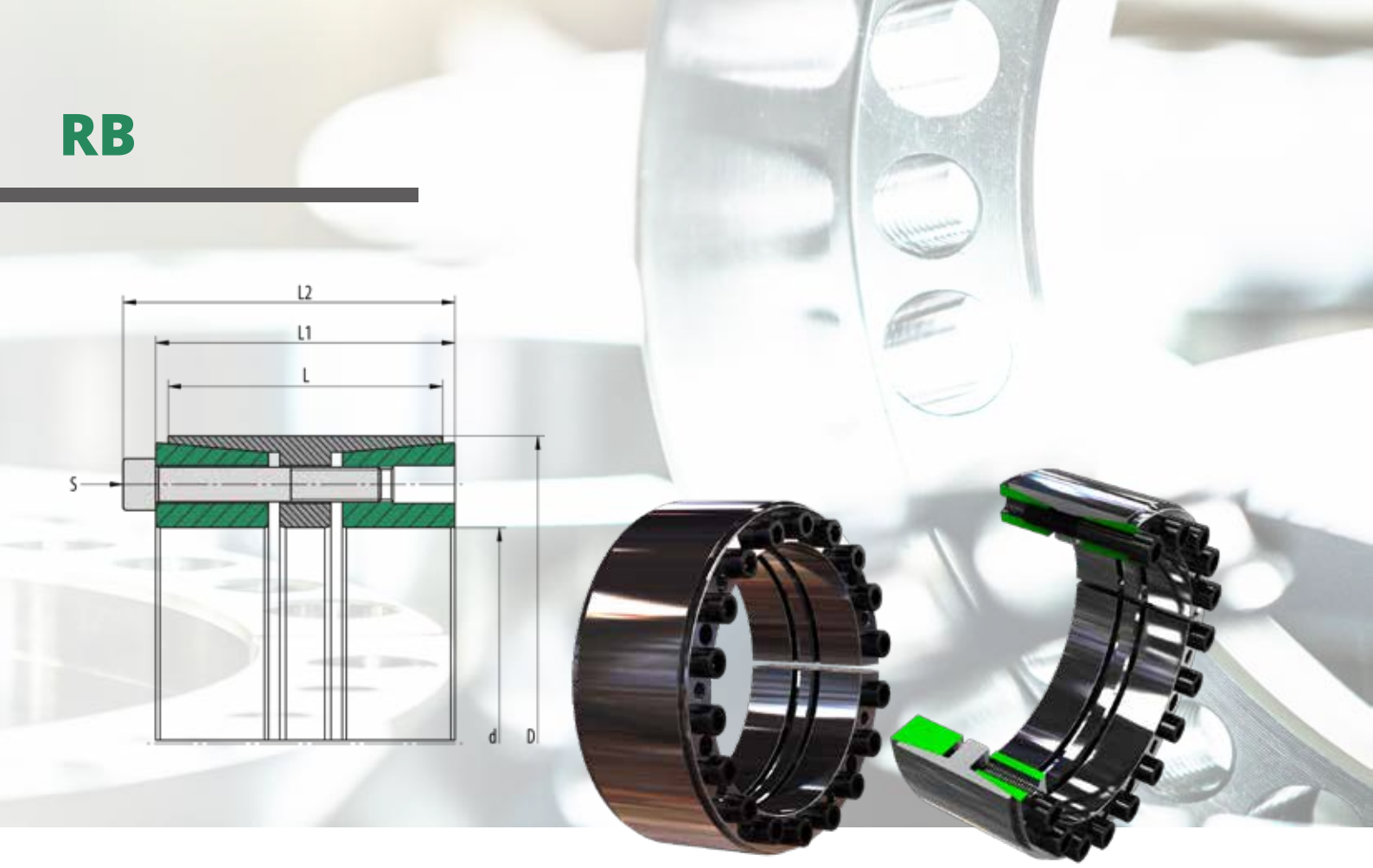
- no axial displacement during assemby
- very good self-centering
- low self-locking

Ordering information: TAS 3014/d/D (e.g: TAS 3014/150/200 ... further sizes on request)

3014

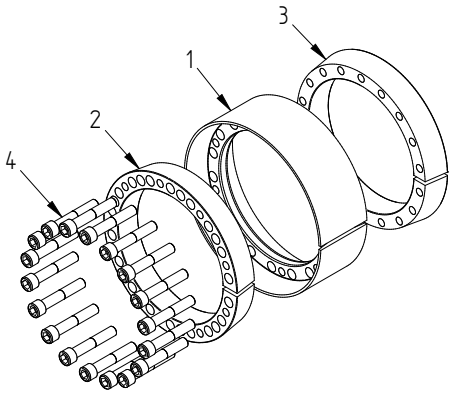
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L_1 mm	L_2 mm	L_3 mm	Weight kg
70	**x**	**120**	7136	204	206	120	8	M12 x 055	145	56	62	74	3,2
80	**x**	**130**	12233	306	271	166	12	M12 x 055	145	56	62	74	3,6
90	**x**	**140**	13762	306	240	155	12	M12 x 055	145	56	62	74	3,9
100	**x**	**160**	20967	419	219	137	12	M14 x 070	235	72	82	96	7,0
110	**x**	**170**	26908	489	233	151	14	M14 x 070	235	72	82	96	7,5
120	**x**	**180**	31450	524	228	152	15	M14 x 070	235	72	82	96	8,0
130	**x**	**190**	34071	524	211	144	15	M14 x 070	235	72	82	96	8,5
140	**x**	**200**	41585	594	222	155	17	M14 x 070	235	72	82	96	9,1
150	**x**	**210**	47176	629	219	151	18	M14 x 070	235	72	82	96	9,6
160	**x**	**230**	65643	821	231	161	17	M16 x 080	365	84	94	110	13,8
170	**x**	**240**	73848	869	230	163	18	M16 x 080	365	84	94	110	14,5
180	**x**	**250**	86880	965	241	174	20	M16 x 080	365	84	94	110	15,3
190	**x**	**260**	96292	1014	240	175	21	M16 x 080	365	84	94	110	16,0
200	**x**	**270**	111013	1110	250	185	23	M16 x 080	365	84	94	110	17,0
220	**x**	**300**	135579	1233	198	145	21	M18 x 100	500	105	116	134	27,0
240	**x**	**320**	169033	1408	208	156	24	M18 x 100	500	105	116	134	29,2
260	**x**	**340**	183119	1409	192	147	24	M18 x 100	500	105	116	134	31,3
280	**x**	**370**	252994	1807	194	147	24	M20 x 120	710	125	136	156	45,0
300	**x**	**390**	271065	1807	181	139	24	M20 x 120	710	125	136	156	47,7

RB



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the sleeve	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,4 * M_t
Bending angle	max. 5´

More properties

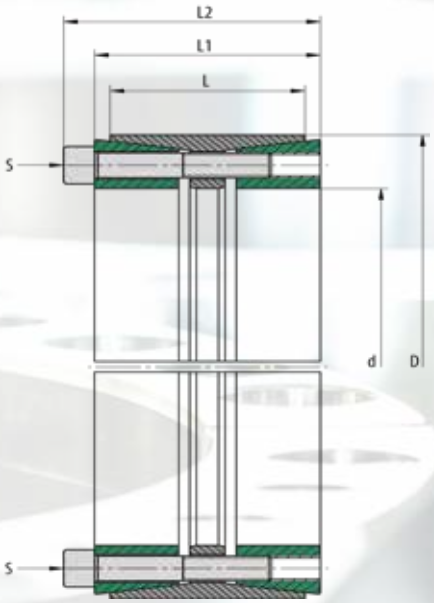
- low axial displacement during assembly
- good self-centering
- low self-locking

Ordering information: TAS RB/d/D (e.g: TAS RB/150/200 ... further sizes on request)

RB

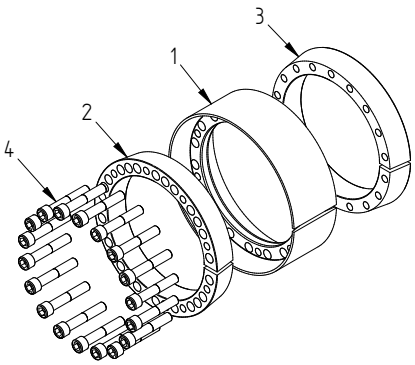
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
100	**x**	**145**	7800	157	80	46	7	M10 x 060	83	62	74	84	4,2
110	**x**	**155**	9800	180	83	50	8	M10 x 060	83	62	74	84	4,6
120	**x**	**165**	12100	202	83	51	9	M10 x 060	83	64	76	86	5,1
130	**x**	**180**	14600	225	85	52	10	M10 x 060	83	64	76	86	6,1
140	**x**	**190**	17300	247	84	52	11	M10 x 060	83	66	78	88	6,7
150	**x**	**200**	18500	247	73	53	11	M10 x 070	83	62	84	94	6,7
160	**x**	**210**	23900	299	75	48	9	M12 x 075	145	78	92	104	8,9
170	**x**	**225**	28200	332	79	50	10	M12 x 075	145	78	92	104	10,4
180	**x**	**235**	29800	332	79	50	10	M12 x 070	145	75	86	100	10,6
190	**x**	**250**	38100	401	67	50	9	M14 x 080	230	85	112	126	13,8
200	**x**	**260**	44500	446	70	54	10	M14 x 090	230	85	112	126	14,5
220	**x**	**285**	53900	490	74	54	11	M14 x 090	230	85	112	126	17,2
240	**x**	**305**	66000	551	76	56	9	M16 x 090	355	85	112	128	18,6
260	**x**	**325**	87400	673	75	57	11	M16 x 100	355	97	124	140	22,7
280	**x**	**355**	111000	795	72	55	13	M16 x 090	355	108	136	152	31,7
300	**x**	**375**	119000	795	73	52	13	M16 x 090	355	108	127	143	33,7
320	**x**	**405**	138000	865	65	47	15	M16 x 090	355	120	142	142	45,6
340	**x**	**425**	142000	841	60	44	15	M16 x 090	355	120	142	158	48,1
360	**x**	**455**	195000	1088	67	49	16	M18 x 130	485	130	160	178	62,1
380	**x**	**475**	235000	1240	67	48	13	M20 x 130	690	145	172	192	72,6
400	**x**	**495**	305000	1526	78	56	16	M20 x 130	690	145	172	192	76,0
420	**x**	**515**	320000	1526	69	54	16	M20 x 130	690	145	180	190	79,4
440	**x**	**545**	377000	1717	74	52	18	M20 x 130	690	160	180	200	102,0
460	**x**	**565**	394000	1717	71	56	18	M20 x 130	690	145	180	200	96,2
480	**x**	**585**	457000	1907	75	54	20	M20 x 130	690	160	180	200	110,3
500	**x**	**605**	476000	1907	72	60	20	M20 x 130	690	140	180	200	100,1
520	**x**	**630**	556000	2141	73	50	18	M22 x 140	930	180	202	224	140,4
540	**x**	**650**	610000	2260	74	51	19	M22 x 140	930	180	202	224	145,3
560	**x**	**670**	666000	2379	75	52	20	M22 x 140	930	180	202	224	150,2
580	**x**	**690**	632000	2180	66	47	20	M22 x 140	930	180	208	208	155,0
600	**x**	**710**	653000	2180	64	45	20	M22 x 140	930	180	208	230	159,9
620	**x**	**730**	585000	1888	78	62	21	M20 x 090	930	110	140	140	100,7

3015



Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
M_t	[Nm]	Max. transmittable torque $F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force $M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft
p_N	[N/mm²]	Average pressure on the hub
L	[mm]	Lenght of the sleeve
L_1	[mm]	Width of the locking device without screws
L_2	[mm]	Width of the locking device with screws
Z		Number of clamping screws
S		Size of the clamping screws
M_A	[Nm]	Tightening torque of the clamping screws



Pos.	Designation
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,3 * M_t
Bending angle	max. 5´

More properties

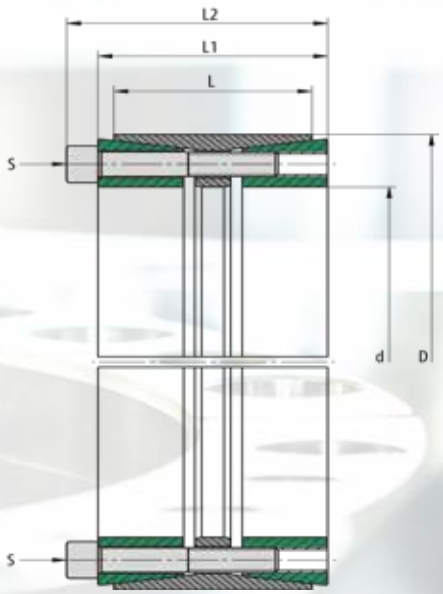
- low axial displacement during assembly
- good self-centering
- low self-locking

Ordering information: TAS 3015/d/D (e.g: TAS 3015/150/200 ... further sizes on request)

3015

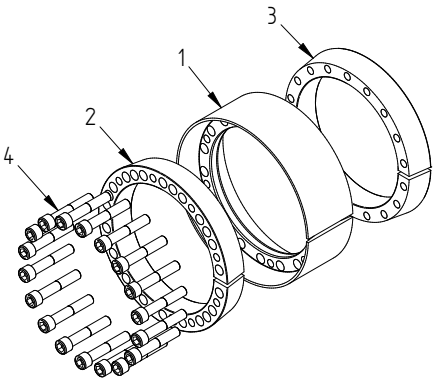
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
70	**x**	**110**	6900	197	187	95	8	M10 x 055	83	50	60	70	2,2
80	**x**	**120**	9800	247	204	109	10	M10 x 055	83	50	60	70	2,5
90	**x**	**130**	12200	271	200	111	11	M10 x 055	83	50	60	70	2,8
100	**x**	**145**	18200	364	201	111	10	M12 x 060	145	60	70	82	4,0
110	**x**	**155**	20000	364	183	104	10	M12 x 060	145	60	70	82	4,4
120	**x**	**165**	24000	401	185	107	11	M12 x 060	145	60	70	82	4,6
130	**x**	**180**	33100	510	193	116	14	M12 x 065	145	65	79	91	6,2
140	**x**	**190**	38200	547	192	117	15	M12 x 065	145	65	79	91	6,6
150	**x**	**200**	40900	547	179	112	15	M12 x 065	145	65	79	91	7,0
160	**x**	**210**	46600	583	179	113	16	M12 x 065	145	65	79	91	7,5
170	**x**	**225**	62300	734	179	111	15	M14 x 075	230	78	92	106	10,3
180	**x**	**235**	66000	734	169	106	15	M14 x 075	230	78	92	106	10,9
190	**x**	**250**	74300	782	144	94	16	M14 x 080	230	88	102	116	14,2
200	**x**	**260**	97100	972	170	113	18	M14 x 080	230	88	102	116	14,8
220	**x**	**285**	110000	1007	148	98	15	M16 x 090	355	96	108	124	19,0
240	**x**	**305**	161000	1342	181	122	20	M16 x 090	355	96	108	124	20,2
260	**x**	**325**	174000	1342	167	114	20	M16 x 090	355	96	108	124	21,8
280	**x**	**355**	219000	1569	196	122	15	M20 x 100	690	96	110	130	28,4
300	**x**	**375**	251000	1674	195	123	16	M20 x 100	690	96	110	130	30,0
320	**x**	**405**	334000	2092	181	111	20	M20 x 110	690	124	136	156	44,2
340	**x**	**425**	355000	2092	170	105	20	M20 x 110	690	124	136	156	49,7
360	**x**	**455**	469000	2610	160	109	20	M22 x 130	930	140	157	179	66,8
380	**x**	**475**	495000	2610	152	104	20	M22 x 130	930	140	157	179	70,0
400	**x**	**495**	574000	2871	159	110	22	M22 x 130	930	140	157	179	73,4
420	**x**	**515**	657000	3132	165	115	24	M22 x 130	930	140	157	179	76,7
440	**x**	**535**	689000	3132	157	111	24	M22 x 130	930	140	157	179	79,9
460	**x**	**555**	720000	3132	151	107	24	M22 x 130	930	140	157	179	83,2
480	**x**	**575**	782000	3262	150	108	25	M22 x 130	930	140	157	179	82,8
500	**x**	**595**	815000	3262	144	104	25	M22 x 130	930	140	157	179	89,8
520	**x**	**615**	950000	3654	155	113	28	M22 x 130	930	140	157	179	93,1
540	**x**	**635**	986000	3654	150	109	28	M22 x 130	930	140	157	179	96,3
560	**x**	**655**	1096000	3915	155	113	30	M22 x 130	930	140	157	179	100
580	**x**	**675**	1135000	3915	149	110	30	M22 x 130	930	140	157	179	103
600	**x**	**695**	1174000	3915	144	107	30	M22 x 130	930	140	157	179	106

3015.1



Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
M_t	[Nm]	Max. transmittable torque $F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force $M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft
p_N	[N/mm²]	Average pressure on the hub
L	[mm]	Lenght of the sleeve
L_1	[mm]	Width of the locking device without screws
L_2	[mm]	Width of the locking device with screws
Z		Number of clamping screws
S		Size of the clamping screws
M_A	[Nm]	Tightening torque of the clamping screws



Pos.	Designation
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,4 * M_t
Bending angle	max. 5´

More properties

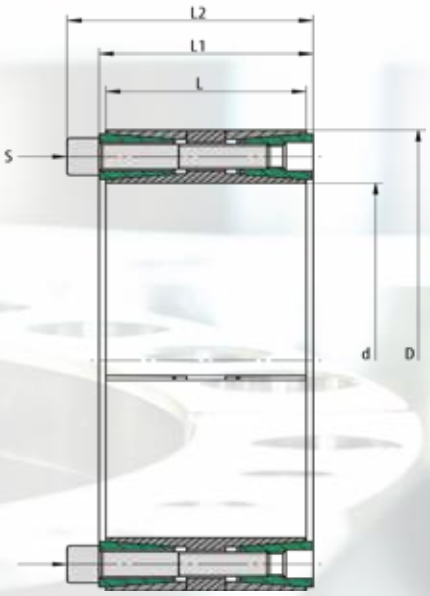
- low axial displacement during assembly
- good self-centering
- low self-locking

Ordering information: **TAS 3015.1/d/D** (e.g: TAS 3015.1/150/200 ... further sizes on request)

3015.1

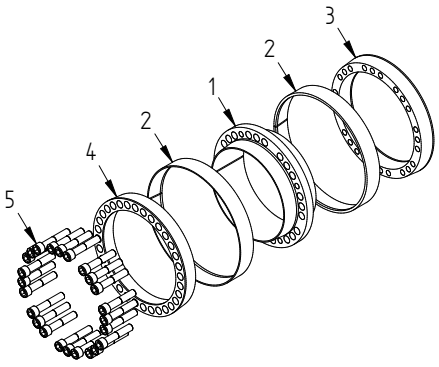
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
70	**x**	**110**	4000	116	110	56	8	M10 x 055	49	50	60	70	2,2
80	**x**	**120**	5800	146	121	64	10	M10 x 055	49	50	60	70	2,5
90	**x**	**130**	7200	160	118	65	11	M10 x 055	49	50	60	70	2,7
100	**x**	**145**	8600	173	96	53	10	M12 x 060	69	60	70	82	4,1
110	**x**	**155**	9500	173	87	49	10	M12 x 060	69	60	70	82	4,4
120	**x**	**165**	11400	191	88	51	11	M12 x 060	69	60	70	82	4,7
130	**x**	**180**	15700	243	92	55	14	M12 x 065	69	65	79	91	6,2
140	**x**	**190**	18200	260	91	56	15	M12 x 065	69	65	79	91	6,6
150	**x**	**200**	19500	260	85	53	15	M12 x 065	69	65	79	91	7,0
160	**x**	**210**	22100	277	85	54	16	M12 x 065	69	65	79	91	7,4
170	**x**	**225**	29200	344	84	52	15	M14 x 075	108	78	92	106	10,4
180	**x**	**235**	30900	344	79	50	15	M14 x 075	108	78	92	106	11,0
190	**x**	**250**	34900	367	67	44	16	M14 x 080	108	88	102	116	14,3
200	**x**	**260**	45600	456	80	53	18	M14 x 080	108	88	102	116	15,0
220	**x**	**285**	52400	476	70	46	15	M16 x 090	168	96	108	124	19,4
240	**x**	**305**	76200	635	86	58	20	M16 x 090	168	96	108	124	21,0
260	**x**	**325**	82500	635	79	54	20	M16 x 090	168	96	108	124	22,5
280	**x**	**355**	117000	839	105	65	15	M20 x 100	369	96	110	130	28,2
300	**x**	**375**	134000	895	104	66	16	M20 x 100	369	96	110	130	30,0
320	**x**	**405**	179000	1119	97	59	20	M20 x 110	369	124	136	156	47,1
340	**x**	**425**	190000	1119	91	56	20	M20 x 110	369	124	136	156	49,7
360	**x**	**455**	250000	1389	85	58	20	M22 x 130	495	140	157	179	66,8
380	**x**	**475**	263000	1389	81	55	20	M22 x 130	495	140	157	179	70,1
400	**x**	**495**	305000	1528	84	58	22	M22 x 130	495	140	157	179	73,4
420	**x**	**515**	350000	1667	88	61	24	M22 x 130	495	140	157	179	76,7
440	**x**	**535**	366000	1667	84	59	24	M22 x 130	550	140	157	179	79,9
460	**x**	**555**	383000	1667	80	57	24	M22 x 130	550	140	157	179	83,2
480	**x**	**575**	416000	1736	80	57	25	M22 x 130	550	140	157	179	86,5
500	**x**	**595**	434000	1736	77	55	25	M22 x 130	550	140	157	179	89,8
520	**x**	**615**	505000	1945	83	60	28	M22 x 130	550	140	157	179	93,1
540	**x**	**635**	525000	1945	80	58	28	M22 x 130	550	140	157	179	96,3
560	**x**	**655**	583000	2084	82	60	30	M22 x 130	550	140	157	179	99,6
580	**x**	**675**	604000	2084	79	58	30	M22 x 130	550	140	157	179	103
600	**x**	**695**	625000	2084	77	57	30	M22 x 130	550	140	157	179	106

3015 DK



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the sleeve	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Outer ring
3	Pressure ring 1
4	Pressure ring 2
5	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,25 * M_t
Bending angle	max. 5´

More properties

- no axial displacement during assembly
- good self-centering
- low self-locking

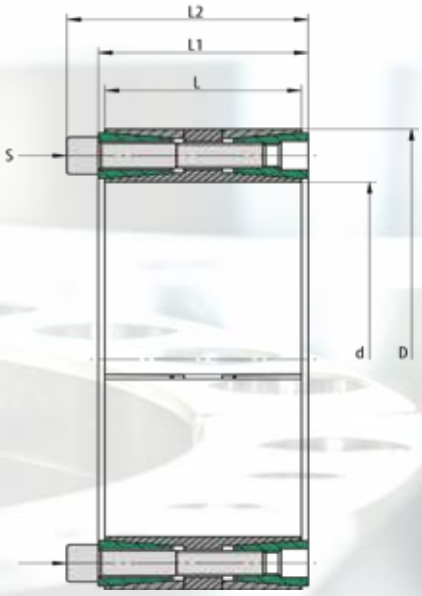
Ordering information: TAS 3015 DK/d/D (e.g: TAS 3015 DK/150/200 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

3015 DK

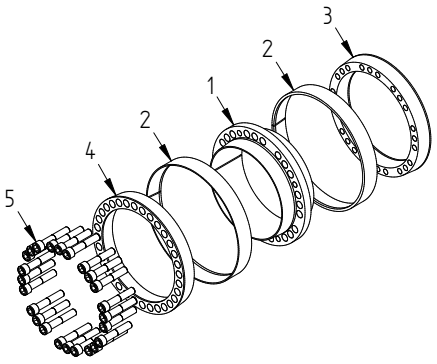
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
100	**x**	**145**	15000	300	217	150	10	M12 x 055	145	60	65	77	4,1
110	**x**	**155**	16500	300	197	140	10	M12 x 055	145	60	65	77	4,4
120	**x**	**165**	21600	360	217	158	12	M12 x 055	145	60	65	77	4,8
130	**x**	**180**	29200	450	212	153	15	M12 x 060	145	68	74	86	6,5
140	**x**	**190**	37800	540	236	174	18	M12 x 060	145	68	74	86	7,0
150	**x**	**200**	40500	540	220	165	18	M12 x 060	145	68	74	86	7,4
160	**x**	**210**	48000	600	230	175	20	M12 x 060	145	68	74	86	7,8
170	**x**	**225**	61600	725	234	177	18	M14 x 065	230	75	81	95	10,0
180	**x**	**235**	65200	725	221	169	18	M14 x 065	230	75	81	95	10,6
190	**x**	**250**	76500	805	198	151	20	M14 x 075	230	88	94	108	14,3
200	**x**	**260**	96600	966	226	174	24	M14 x 075	230	88	94	108	15,0
220	**x**	**285**	109400	995	203	156	18	M16 x 090	355	98	104	120	19,8
240	**x**	**305**	159200	1326	248	195	24	M16 x 090	355	98	104	120	21,4
260	**x**	**325**	179600	1382	238	191	25	M16 x 090	355	98	104	120	23,0
280	**x**	**355**	225200	1608	208	164	24	M18 x 110	485	120	126	144	35,2
300	**x**	**375**	251300	1675	202	162	25	M18 x 110	485	120	126	144	37,4
320	**x**	**405**	344600	2153	208	164	25	M20 x 120	690	135	142	162	51,3
340	**x**	**425**	366100	2153	196	157	25	M20 x 120	690	135	142	162	54,1
360	**x**	**455**	483500	2686	198	157	25	M22 x 130	930	158	165	187	75,4
380	**x**	**475**	510400	2686	188	150	25	M22 x 130	930	158	165	187	79,0
400	**x**	**495**	537200	2686	178	144	25	M22 x 130	930	158	165	187	82,8
420	**x**	**515**	676900	3223	204	166	30	M22 x 130	930	158	165	187	86,5
440	**x**	**545**	829200	3769	207	167	30	M24 x 150	1200	172	180	204	110
460	**x**	**565**	866900	3769	198	161	30	M24 x 150	1200	172	180	204	114
480	**x**	**585**	964600	4020	202	166	32	M24 x 150	1200	172	180	204	119
500	**x**	**605**	100500	4020	194	160	32	M24 x 150	1200	172	180	204	123
520	**x**	**630**	1162900	4473	183	151	30	M27 x 160	1600	190	200	227	148
540	**x**	**650**	1207600	4473	176	146	30	M27 x 160	1600	190	200	227	154
560	**x**	**670**	1252400	4473	169	142	30	M27 x 160	1600	190	200	227	160
580	**x**	**690**	1297100	4473	164	138	30	M27 x 160	1600	190	200	227	165
600	**x**	**710**	1431300	4771	169	143	32	M27 x 160	1600	190	200	227	170
620	**x**	**730**	1478000	4771	163	139	32	M27 x 160	1600	190	200	227	175

3015.1 DK



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the sleeve	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Outer ring
3	Pressure ring 1
4	Pressure ring 2
5	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,35 * M_t
Bending angle	max. 5´

More properties

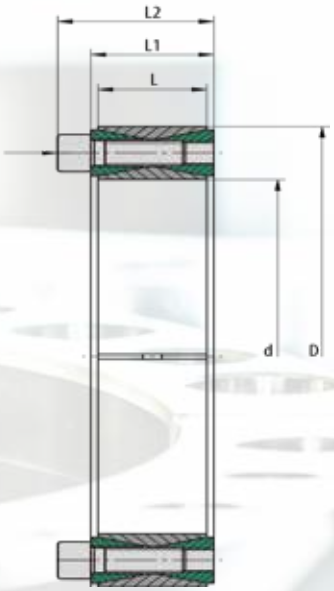
- no axial displacement during assembly
- good self-centering
- low self-locking

Ordering information: TAS 3015.1 DK/d/D (e.g: TAS 3015.1 DK/150/200 ... further sizes on request)

3015.1 DK

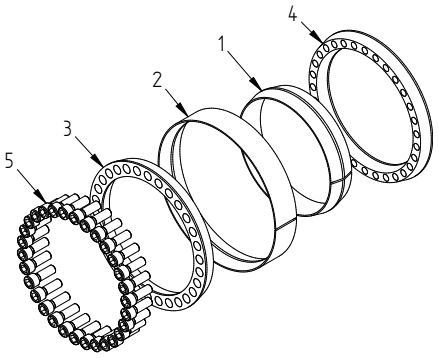
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
100	**x**	**145**	7000	139	101	69	9	M10 x 055	83	60	65	75	4,1
110	**x**	**155**	8500	155	102	72	10	M10 x 055	83	60	65	75	4,4
120	**x**	**165**	11100	185	112	81	12	M10 x 055	83	60	65	75	4,8
130	**x**	**180**	15100	232	109	79	15	M10 x 060	83	68	74	84	6,5
140	**x**	**190**	16200	232	101	75	15	M10 x 060	83	68	74	84	7,0
150	**x**	**200**	18500	247	101	76	16	M10 x 060	83	68	74	84	7,4
160	**x**	**210**	22300	278	106	81	18	M10 x 060	83	68	74	84	7,8
170	**x**	**225**	29100	343	111	84	15	M12 x 065	145	75	81	93	10,0
180	**x**	**235**	32900	365	111	85	16	M12 x 065	145	75	81	93	10,6
190	**x**	**250**	39100	411	101	77	18	M12 x 075	145	88	94	106	14,3
200	**x**	**260**	45700	457	107	82	20	M12 x 075	145	88	94	106	15,0
220	**x**	**285**	52800	480	98	75	21	M12 x 080	145	98	104	116	19,8
240	**x**	**305**	65800	548	102	81	24	M12 x 080	145	98	104	116	21,4
260	**x**	**325**	80200	617	106	85	27	M12 x 080	145	98	104	116	23,0
280	**x**	**355**	120200	858	111	87	28	M14 x 100	230	120	126	140	35,2
300	**x**	**375**	128700	858	104	83	28	M14 x 100	230	120	126	140	37,4
320	**x**	**405**	188500	1178	114	90	28	M16 x 110	355	135	142	158	51,3
340	**x**	**425**	200300	1178	107	86	28	M16 x 110	355	135	142	158	54,1
360	**x**	**455**	220400	1225	90	71	24	M18 x 140	485	158	165	183	75,4
380	**x**	**475**	261800	1378	96	77	27	M18 x 140	485	158	165	183	79,0
400	**x**	**495**	326600	1633	108	87	32	M18 x 140	485	158	165	183	82,8
420	**x**	**515**	342900	1633	103	84	32	M18 x 140	485	158	165	183	86,5
440	**x**	**545**	389600	1771	97	78	27	M20 x 140	690	172	180	200	110
460	**x**	**565**	407300	1771	93	76	27	M20 x 140	690	172	180	200	114
480	**x**	**585**	472200	1968	99	81	30	M20 x 140	690	172	180	200	119
500	**x**	**605**	491900	1968	95	78	30	M20 x 140	690	172	180	200	123
520	**x**	**630**	545700	2099	86	71	32	M20 x 150	690	190	200	220	148
540	**x**	**650**	566700	2099	83	69	32	M20 x 150	690	190	200	220	154
560	**x**	**670**	661100	2361	90	75	36	M20 x 150	690	190	200	220	160
580	**x**	**690**	684700	2361	86	73	36	M20 x 150	690	190	200	220	165
600	**x**	**710**	708300	2361	84	71	36	M20 x 150	690	190	200	220	170
620	**x**	**730**	731900	2361	81	69	36	M20 x 150	690	190	200	220	175
640	**x**	**750**	755500	2361	78	67	36	M20 x 150	690	190	200	220	180

3020



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the sleeve inside and outside	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Outter ring
3	Pressure ring 1
4	Pressure ring 2
5	Screw

Recommended tolerances & surfaces

Shaft	from h11 to k11 / Rz10
Hub	from H11 to N11 / Rz10

Bending loads

Bending moment (share)	depending on hub
Bending angle	max. 2`

More properties

- no axial displacement during assembly
- no self-centering
- no self-locking

Ordering information: TAS 3020/d/D (e.g: TAS 3020/150/200 ... further sizes on request)

3020

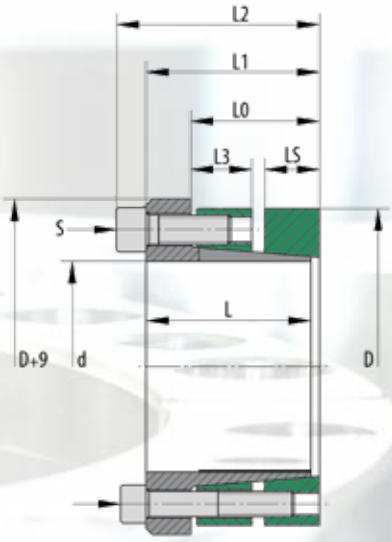
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
17	**x**	**47**	266	31	291	105	8	M6 x 018	17	17	20	27,5	0,23
18	**x**	**47**	282	31	275	105	8	M6 x 018	17	17	20	27,5	0,23
19	**x**	**47**	298	31	260	105	8	M6 x 018	17	17	20	27,5	0,23
20	**x**	**47**	313	31	247	105	8	M6 x 018	17	17	20	27,5	0,23
22	**x**	**47**	345	31	225	105	8	M6 x 018	17	17	20	27,5	0,23
24	**x**	**50**	424	35	206	99	9	M6 x 018	17	17	20	27,5	0,26
25	**x**	**50**	441	35	198	99	9	M6 x 018	17	17	20	27,5	0,25
28	**x**	**55**	549	39	265	135	10	M6 x 018	17	17	20	27,5	0,30
30	**x**	**55**	588	39	247	135	10	M6 x 018	17	17	20	27,5	0,29
32	**x**	**60**	752	47	232	124	12	M6 x 018	17	17	20	27,5	0,32
35	**x**	**60**	822	47	212	124	12	M6 x 018	17	17	20	27,5	0,32
38	**x**	**65**	1042	55	244	143	14	M6 x 018	15	17	20	27,5	0,34
40	**x**	**65**	1097	55	232	143	14	M6 x 018	17	17	20	27,5	0,34
42	**x**	**75**	1740	83	278	156	12	M8 x 022	41	20	24	33,5	0,57
45	**x**	**75**	1864	83	259	156	12	M8 x 022	41	20	24	33,5	0,57
48	**x**	**80**	1988	83	243	146	12	M8 x 022	41	20	24	33,5	0,60
50	**x**	**80**	2071	83	233	146	12	M8 x 022	41	20	24	33,5	0,60
55	**x**	**85**	2658	97	265	172	14	M8 x 022	41	20	24	33,5	0,63
60	**x**	**90**	2900	97	243	162	14	M8 x 022	41	20	24	33,5	0,69
65	**x**	**95**	3587	110	224	153	16	M8 x 022	41	20	24	33,5	0,73
70	**x**	**110**	5345	153	286	182	14	M10 x 025	83	24	28	39,5	1,26
75	**x**	**115**	5727	153	267	174	14	M10 x 025	83	24	28	39,5	1,33
80	**x**	**120**	6108	153	250	167	14	M10 x 025	83	24	28	39,5	1,40
85	**x**	**125**	7417	175	236	160	16	M10 x 025	83	24	28	39,5	1,49
90	**x**	**130**	7854	175	223	154	16	M10 x 025	83	24	28	39,5	1,53
95	**x**	**135**	9326	196	253	178	18	M10 x 025	83	24	28	39,5	1,62
100	**x**	**145**	11362	227	273	189	14	M12 x 030	145	26	33	47	2,01
110	**x**	**155**	12498	227	248	176	14	M12 x 030	145	26	33	47	2,15
120	**x**	**165**	15578	260	243	177	16	M12 x 030	145	26	33	47	2,35
130	**x**	**180**	21095	325	214	155	20	M12 x 035	145	34	38	52	3,51
140	**x**	**190**	24993	357	219	161	22	M12 x 035	145	34	38	52	3,85
150	**x**	**200**	29217	390	223	167	24	M12 x 035	145	34	38	52	4,07
160	**x**	**210**	33756	422	226	173	26	M12 x 035	145	34	38	52	4,03
170	**x**	**225**	39483	465	217	164	22	M14 x 040	230	38	44	60	5,78
180	**x**	**235**	45606	507	223	171	24	M14 x 040	230	38	44	60	6,05
190	**x**	**250**	56163	591	204	155	28	M14 x 045	230	46	52	68	8,25
200	**x**	**260**	63342	633	207	159	30	M14 x 045	230	46	52	68	8,65
220	**x**	**285**	81960	745	206	159	26	M16 x 050	355	50	56	74	11,22
240	**x**	**305**	103162	860	218	172	30	M16 x 050	355	50	56	74	12,20
260	**x**	**325**	126669	974	228	183	34	M16 x 050	355	50	56	74	13,20
280	**x**	**355**	157339	1124	202	159	32	M18 x 060	485	60	66	86,5	19,20
300	**x**	**375**	189653	1264	212	169	36	M18 x 060	485	60	66	86,5	20,50
320	**x**	**405**	264108	1651	213	168	36	M20 x 070	690	72	78	100,5	29,60

3020

d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
340	**x**	**425**	280614	1651	200	160	36	M20 x 070	690	72	78	100,5	31,1
360	**x**	**455**	363061	2017	202	160	36	M22 x 080	930	84	90	116	42,2
380	**x**	**475**	383232	2017	191	153	36	M22 x 080	930	84	90	116	44,0
400	**x**	**495**	403402	2017	182	147	36	M22 x 080	930	84	90	116	46,0
420	**x**	**515**	537000	2559	192	157	40	M22 x 080	930	84	90	116	46,0
440	**x**	**545**	658000	2992	188	152	40	M24 x 090	1200	96	102	127	61,2
460	**x**	**565**	688000	2992	180	146	40	M24 x 090	1200	96	102	130	63,7
480	**x**	**585**	753000	3142	181	148	42	M24 x 090	1200	96	102	130	66,2
500	**x**	**605**	822000	3291	182	150	44	M24 x 090	1200	96	102	130	68,7
520	**x**	**630**	889000	3422	182	150	45	M24 x 090	1200	96	102	130	74,9
540	**x**	**650**	923000	3422	175	145	45	M24 x 090	1200	96	102	127	77,5
560	**x**	**670**	1022000	3650	180	151	48	M24 x 090	1200	96	102	130	80,1
580	**x**	**690**	1102000	3802	181	152	50	M24 x 090	1200	96	102	130	82,7
600	**x**	**710**	1140000	3802	175	148	50	M24 x 090	1200	96	102	130	85,3
620	**x**	**730**	1225000	3954	176	150	52	M24 x 090	1200	96	102	130	87,9
640	**x**	**750**	1314000	4106	177	151	54	M24 x 090	1200	96	102	130	90,5
660	**x**	**770**	1405000	4258	178	153	56	M24 x 090	1200	96	102	130	93,1
680	**x**	**790**	1447000	4258	173	149	56	M24 x 090	1200	96	102	130	95,7
700	**x**	**810**	1596000	4563	180	156	60	M24 x 090	1200	96	102	130	98,3

TAS
SCHÄFER

4006



Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
Mt1	[Nm]	Max. transmittable torque pressure ring 1
Fax1	[kN]	Max. transmittable axial force pressure ring 1
Mt2	[Nm]	Max. transmittable torque pressure ring 2
Fax2	[kN]	Max. transmittable axial force pressue ring 2
Mt1+2		[Nm] Entire transmittable torque Fax = 0
Fax1+2		[kN] Entire transmittable axial force Mt = 0
pW1	[N/mm2]	Average pressure on the shaft
pN1	[N/mm2]	Average pressure on the hub 1
pW2	[N/mm2]	Average pressure on the shaft
pN2	[N/mm2]	Average pressure on the hub 2
L	[mm]	Lenght of the sleeve
L0	[mm]	Distance pressure ring 2
L1	[mm]	Width of the locking device without screws
L2	[mm]	Width of the locking device with screws
L3	[mm]	Distance pressure ring 1
LS	[mm]	Width of the pressure rings
Z1 & Z2		Number of clamping screws
S1 & S2		Size of the clamping screws
MA1 & MA2		Tightening torque of the clamping screws

Empfohlene Toleranzen & Oberflächen

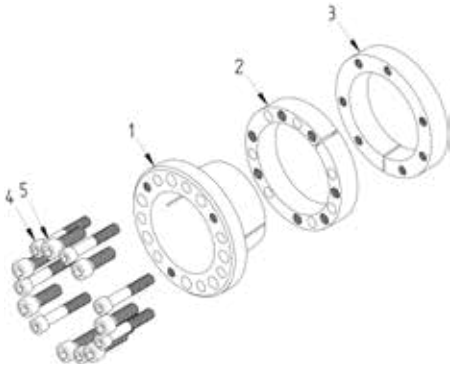
Shaft	h8 / Rz 10
Hub	H8 / Rz 10

Biegebelastung

Bending moment (share)	MB max = 0,6 * Mt
Bending angle	max. 5`

More properties

- no axial displacement during assembly
- very good self-centering
- high self-locking



Pos.	Designation
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw S_2
5	Screw S_1

Ordering information: **TAS 4006/d/D** (e.g: TAS 4006/030/060 ... further sizes on request)

4006

d mm		D mm	M_{t1} Nm	F_{ax1} kN	M_{t2} Nm	F_{ax2} kN	M_{t1+2} Nm	F_{ax1+2} kN	p_{W1} N/mm²	p_{N1} N/mm²	p_{W2} N/mm²	p_{N2} N/mm²	Z_1 Pcs.	S_1	M_{A1} Nm	Z_2 Pcs.	S_2	M_{A2} Nm	L mm	L_0 mm	L_1 mm	L_2 mm	L_3 mm	L_s mm	Weight kg
30	x	**60**	623	42	342	23	**965**	**64**	245	124	134	67	4	M8x25	41	4	M6x40	17	45	36	48	56	18	15	0,95
35	x	**65**	727	42	499	29	**1226**	**70**	210	115	144	78	4	M8x25	41	5	M6x40	17	45	36	48	56	18	15	1,00
40	x	**70**	1039	52	570	29	**1609**	**80**	230	133	126	72	5	M8x25	41	5	M6x40	17	45	36	48	56	18	15	1,12
45	x	**80**	1516	67	1166	52	**2682**	**119**	221	126	170	95	4	M10x25	83	5	M8x50	41	54	42	57	67	21	18	1,47
50	x	**85**	2105	84	1296	52	**3401**	**136**	248	148	153	90	5	M10x25	83	5	M8x50	41	54	42	57	67	21	18	1,58
55	x	**90**	2316	84	1426	52	**3741**	**136**	226	140	139	85	5	M10x25	83	5	M8x50	41	54	42	57	67	21	18	1,70
60	x	**95**	3032	101	1866	62	**4898**	**163**	248	159	153	96	6	M10x25	83	6	M8x50	41	54	42	57	67	21	18	1,81
65	x	**100**	3284	101	2022	62	**5306**	**163**	229	151	141	92	6	M10x25	83	6	M8x50	41	54	42	57	67	21	18	1,93
70	x	**115**	5140	147	3531	101	**8672**	**248**	232	143	159	97	6	M12x35	145	6	M10x60	83	70	56	74	86	27	24	3,60
80	x	**125**	6854	171	4709	118	**11562**	**289**	237	154	163	104	7	M12x35	145	7	M10x60	83	70	56	74	86	27	24	4,00
90	x	**135**	7711	171	5297	118	**13008**	**289**	210	142	145	96	7	M12x35	145	7	M10x60	83	70	56	74	86	27	24	4,38
100	x	**150**	11498	230	8698	174	**20195**	**404**	235	159	177	118	7	M14x40	230	7	M12x70	145	78	61	82	96	29	26	6,00
110	x	**160**	12647	230	9568	174	**22215**	**404**	213	149	161	111	7	M14x40	230	7	M12x70	145	78	61	82	96	29	26	6,50
120	x	**170**	13797	230	10437	174	**24235**	**404**	196	140	148	104	7	M14x40	230	7	M12x70	145	78	61	82	96	29	26	6,97
130	x	**190**	23804	366	17342	267	**41146**	**633**	249	170	181	124	8	M16x50	355	8	M14x80	230	90	71	95	111	35	30	11,0
140	x	**200**	25635	366	18676	267	**44311**	**633**	231	162	169	118	8	M16x50	355	8	M14x80	230	90	71	95	111	35	30	11,6
150	x	**210**	27466	366	20010	267	**47476**	**633**	216	154	157	112	8	M16x50	355	8	M14x80	230	90	71	95	111	35	30	13,0
160	x	**220**	29297	366	21344	267	**50641**	**633**	202	147	147	107	8	M16x50	355	8	M14x80	230	90	71	95	111	35	30	12,3
180	x	**250**	51375	571	32959	366	**84334**	**937**	210	151	135	97	8	M20x70	690	8	M16x100	355	114	92	122	142	45	40	22,1
200	x	**270**	71355	714	45776	458	**117131**	**1171**	237	175	152	112	10	M20x70	690	10	M16x100	355	114	92	122	142	45	40	24,3
220	x	**290**	78490	714	50354	458	**128844**	**1171**	215	163	138	105	10	M20x70	690	10	M16x100	355	114	92	122	142	45	40	26,3
240	x	**310**	102751	856	65918	549	**168669**	**1406**	237	183	152	118	12	M20x70	690	12	M16x100	355	114	92	122	142	45	40	28,6
260	x	**330**	109740	844	70402	542	**180143**	**1386**	215	170	138	109	12	M20x70	690	12	M16x110	355	114	92	122	142	45	40	30,6
280	x	**365**	143639	1026	98485	703	**242124**	**1729**	216	166	148	114	10	M24x80	1200	10	M20x120	690	135	108	144	168	50	45	46,5
300	x	**385**	153899	1026	105520	703	**259419**	**1729**	202	157	138	108	10	M24x80	1200	10	M20x120	690	135	108	144	168	50	45	49,3
320	x	**405**	196991	1231	135065	844	**332056**	**2075**	227	179	155	123	12	M24x80	1200	12	M20x120	690	135	108	144	168	50	45	52
340	x	**425**	244186	1436	167425	985	**411611**	**2421**	249	199	171	137	14	M24x80	1200	14	M20x120	690	135	108	144	168	50	45	54
360	x	**445**	258550	1436	177273	985	**435823**	**2421**	235	190	161	130	14	M24x80	1200	14	M20x120	690	135	108	144	168	50	45	57
380	x	**465**	311902	1642	213853	1126	**525755**	**2767**	255	208	175	143	16	M24x80	1200	16	M20x120	690	135	108	144	168	50	45	60
400	x	**485**	328318	1642	225109	1126	**553426**	**2767**	242	200	166	137	16	M24x80	1200	16	M20x120	690	135	108	144	168	50	45	64
420	x	**505**	344734	1642	236364	1126	**581098**	**2767**	230	192	158	131	16	M24x80	1200	16	M20x120	690	135	108	144	168	50	45	66
440	x	**525**	361150	1642	247619	1126	**608769**	**2767**	168	141	115	96	16	M24x80	1200	16	M20x140	690	167	147	178	202	80	59	70
460	x	**545**	377565	1642	258875	1126	**636440**	**2767**	160	135	110	93	16	M24x80	1200	16	M20x140	690	167	147	178	202	80	59	73
480	x	**565**	393981	1642	270130	1126	**664112**	**2767**	154	131	105	90	16	M24x80	1200	16	M20x140	690	167	147	178	202	80	59	76
500	x	**585**	461697	1847	316559	1266	**778256**	**3113**	166	142	114	97	18	M24x80	1200	18	M20x140	690	167	147	178	202	80	59	79

4006

d mm		D mm	M_{t1} Nm	F_{ax1} kN	M_{t2} Nm	F_{ax2} kN	M_{t1+2} Nm	F_{ax1+2} kN	p_{W1} N/mm²	p_{N1} N/mm²	p_{W2} N/mm²	p_{N2} N/mm²	Z_1 Pcs.	S_1	M_{A1} Nm	Z_2 Pcs.	S_2	M_{A2} Nm	L mm	L_0 mm	L_1 mm	L_2 mm	L_3 mm	L_s mm	Weight kg
520	x	**605**	480165	1847	329221	1266	**809386**	**3113**	160	137	109	94	18	M24x80	1200	18	M20x140	690	167	147	178	202	80	59	82
540	x	**625**	498633	1847	341884	1266	**840516**	**3113**	154	133	105	91	18	M24x80	1200	18	M20x140	690	167	147	178	202	80	59	85
560	x	**645**	517101	1847	354546	1266	**871647**	**3113**	148	129	102	88	18	M24x80	1200	18	M20x140	690	167	147	178	202	80	59	88
580	x	**665**	595076	2052	408009	1407	**1003085**	**3459**	159	139	109	95	20	M24x80	1200	20	M20x140	690	167	147	178	202	80	59	91
600	x	**685**	615596	2052	422079	1407	**1037675**	**3459**	154	135	105	92	20	M24x80	1200	20	M20x140	690	167	147	178	202	80	59	94
620	x	**705**	636116	2052	436148	1407	**1072264**	**3459**	149	131	102	90	20	M24x80	1200	20	M20x140	690	167	147	178	202	80	59	98

Comprehensive technical advice with decades of know-how

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8006

Used symbols

d	[mm]	Shaft diameter
D	[mm]	Hub inside diameter
L	[mm]	Lenght of the locking divece
l	[mm]	Width of inner ring and outer ring
At	[mm²]	Contact surface of the shaft
Fo	[N]	Pretension to eliminate tolerances (for unslitted version)
FA	[N]	Clamping force required to apply pressure of p = 100 N/mm²
T	[Nm]	Max. transmittable torque (at p = 100 N/mm²) Fax = 0
Fax	[N]	Max. transmittable axial force (at p = 100 N/mm²) T = 0
x	[mm]	Distance between clampings flange and hub in relation to the number of clamping elements
d1	[mm]	inner diameter spacer bushing
D1	[mm]	outer diameter spacer bushing

More properties

- axial displacement during assembly
- good self-centering
- no self-locking

Recommended tolerances & surfaces

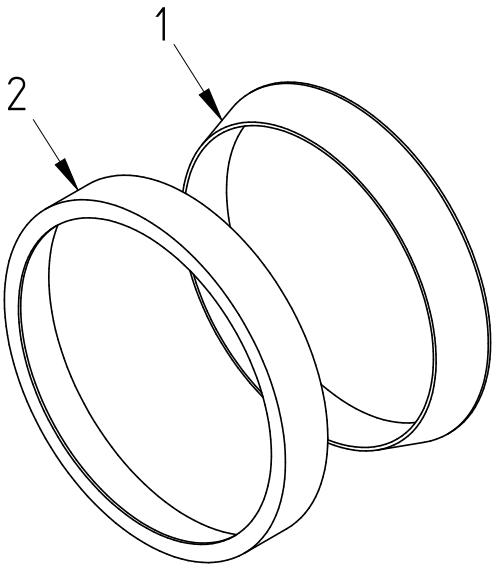
Shaft	< d 38mm h6 / > d 40mm h8 / Rz10
Hub	< d 38mm H7 / > d 40mm H8 / Rz10

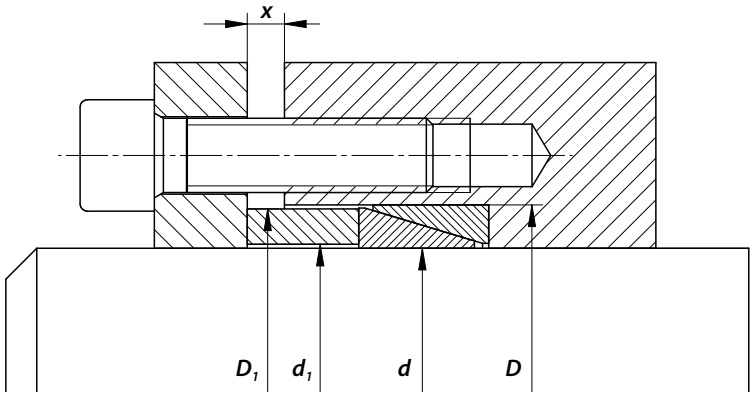
Bending loads

Bending moment (share)
Depending on hub design and number of clamping elements

Ordering information: TAS 8006/d/D (z.B: TAS 8006/150/200 ...further sizes on request)
TAS 8006/d/D slotted (e.g: TAS 8006/150/200 slotted ... further sizes on request)

8006





When arranging several elements, ensure that there is no mutual inhibition.

Pos.	Designation
1	Inner ring
2	Outter ring

d		D	L	l	A_t	F_o	F_A	T	F_{ax}	x 1	x 2	x 3	x 4	Weight	d_1	D_1
mm		mm	mm	mm	mm²	N	N	Nm	N	Locking elements mm				kg	mm	mm
6	x	9	4,5	3,7	69	-	3240	2,16	720	2	2	3	3	0,00118	6,1	8,9
7	x	10	4,5	3,7	80	-	3780	2,94	840	2	2	3	3	0,00136	7,1	9,9
8	x	11	4,5	3,7	90	-	4300	3,84	960	2	2	3	3	0,00151	8,1	10,9
9	x	12	4,5	3,7	105	7600	5700	5,7	1270	2	2	3	3	0,00166	9,1	11,9
10	x	13	4,5	3,7	116	6950	6300	7	1400	2	2	3	3	0,00182	10,1	12,9
12	x	15	4,5	3,7	139	6950	7500	10	1670	2	2	3	3	0,00214	12,1	14,9
13	x	16	4,5	3,7	151	6450	8150	11,8	1810	2	2	3	3	0,00226	13,1	15,9
14	x	18	6,3	5,3	233	11200	12600	19,6	2800	3	3	4	5	0,00487	14,1	17,9
15	x	19	6,3	5,3	250	10750	13500	22,5	3000	3	3	4	5	0,00526	15,1	18,9
16	x	20	6,3	5,3	266	10100	14400	25,5	3190	3	3	4	5	0,00545	16,1	19,9
17	x	21	6,3	5,3	283	9550	15300	28,9	3400	3	3	4	5	0,0058	17,1	20,9
18	x	22	6,3	5,3	300	9100	16200	32,4	3600	3	3	4	5	0,00612	18,1	21,9
19	x	24	6,3	5,3	316	12600	17100	36	3790	3	3	4	5	0,00782	19,2	23,8
20	x	25	6,3	5,3	333	12050	18000	40	4000	3	3	4	5	0,00817	20,2	24,8
22	x	26	6,3	5,3	366	9050	19800	48	4400	3	3	4	5	0,00724	22,2	25,8
24	x	28	6,3	5,3	400	8350	21600	58	4800	3	3	4	5	0,00792	24,2	27,8
25	x	30	6,3	5,3	416	9900	22500	62	5000	3	3	4	5	0,0101	25,2	29,8
28	x	32	6,3	5,3	466	7400	25200	78	5600	3	3	4	5	0,00918	28,2	31,8
30	x	35	6,3	5,3	499	8500	27000	90	6000	3	3	4	5	0,012	30,2	34,8
32	x	36	6,3	5,3	533	7850	28800	102	6400	3	3	4	5	0,01	32,2	35,8
35	x	40	7	6	659	10100	35600	138	7900	3	3	4	5	0,017	35,2	39,8
36	x	42	7	6	678	11600	36600	147	8200	3	3	4	5	0,02	36,2	41,8
38	x	44	7	6	716	11000	38700	163	8600	3	3	4	5	0,021	38,2	43,8
40	x	45	8	6,6	829	13800	45000	199	9950	3	4	5	6	0,023	40,2	44,8
42	x	48	8	6,6	870	15600	47000	219	10400	3	4	5	6	0,028	42,2	47,8

8006

d		D	L	l	A_t	F_o	F_A	T	F_{ax}	x 1	x 2	x 3	x 4	Weight	d_1	D_1
mm		mm	mm	mm	mm^2	N	N	Nm	N	Locking elements mm				kg	mm	mm
45	x	**52**	10	8,6	1215	28200	66000	328	14600	3	4	5	6	0,042	45,2	51,8
48	x	**55**	10	8,6	1296	24600	70000	373	15600	3	4	5	6	0,045	48,2	54,8
50	x	**57**	10	8,6	1350	23500	73000	405	16200	3	4	5	6	0,047	50,2	56,8
55	x	**62**	10	8,6	1485	21800	80000	490	17800	3	4	5	6	0,05	55,2	61,8
56	x	**64**	12	10,4	1829	29400	99000	615	22000	3	4	5	7	0,067	56,2	63,8
60	x	**68**	12	10,4	1959	27400	106000	705	23500	3	4	5	7	0,072	60,2	67,8
63	x	**71**	12	10,4	2057	26300	111000	780	24800	3	4	5	7	0,077	63,2	70,8
65	x	**73**	12	10,4	2123	25400	115000	830	25600	3	4	5	7	0,079	65,2	72,8
70	x	**79**	14	12,2	2682	31000	145000	1120	32000	3	5	6	7	0,111	70,3	78,7
71	x	**80**	14	12,2	2720	31000	147000	1160	32600	3	5	6	7	0,113	71,3	79,7
75	x	**84**	14	12,2	2873	34600	155000	1290	34400	3	5	6	7	0,12	75,3	83,7
80	x	**91**	17	15	3768	48000	203000	1810	45000	4	5	6	8	0,188	80,3	90,7
85	x	**96**	17	15	4004	45600	216000	2040	48000	4	5	6	8	0,2	85,3	95,7
90	x	**101**	17	15	4239	43400	229000	2290	51000	4	5	6	8	0,216	90,3	100,7
95	x	**106**	17	15	4475	41200	242000	2550	54000	4	5	6	8	0,224	95,3	105,7
100	x	**114**	21	18,7	5872	60700	317000	3520	70000	4	6	7	9	0,38	100,3	113,7
110	x	**124**	21	18,7	6459	66000	349000	4250	77000	4	6	7	9	0,41	110,3	123,7
120	x	**134**	21	18,7	7046	60200	380000	5050	84000	4	6	7	9	0,452	120,3	133,7
130	x	**148**	28	25,3	10328	96200	558000	8050	124000	5	7	9	11	0,847	130,3	147,6
140	x	**158**	28	25,3	11122	89000	600000	9350	134000	5	7	9	11	0,91	140,3	157,6
150	x	**168**	28	25,3	11916	84500	643000	10700	143000	5	7	9	11	0,967	150,4	167,6
160	x	**178**	28	25,3	12711	78500	686000	12200	152500	5	7	9	11	1,023	160,4	177,6
170	x	**191**	33	30	16014	117500	865000	16300	192000	6	8	10	12	1,5	170,4	190,5
180	x	**201**	33	30	16956	111200	916000	18300	204000	6	8	10	12	1,58	180,5	200,5
190	x	**211**	33	30	17898	105000	966000	20400	214000	6	8	10	12	1,68	190,5	210,5
200	x	**224**	38	34,8	21854	134000	1180000	26200	262000	6	8	11	13	2,32	200,6	223,4
210	x	**234**	38	34,8	22947	127000	1239000	28900	275000	6	8	11	13	2,45	210,6	233,4
220	x	**244**	38	34,8	24040	122000	1298000	31700	288000	6	8	11	13	2,49	220,6	243,4
230	x	**257**	43	39,5	28527	165000	1540000	39400	342000	6	9	12	14	3,38	230,6	256,4
240	x	**267**	43	39,5	29767	157500	1610000	43000	358000	6	9	12	14	3,52	240,6	266,4
250	x	**280**	48	44	34700	190000	1870000	52000	415000	7	10	13	16	4,68	250,8	279,2
260	x	**290**	48	44	36100	182000	1950000	56500	435000	7	10	13	16	4,82	260,8	289,2
270	x	**300**	48	44	37500	177000	2030000	61000	450000	7	10	13	16	4,94	270,8	299,2
280	x	**313**	53	49	43100	206000	2330000	72500	520000	7	10	14	17	6,27	280,8	312,2
290	x	**323**	53	49	44600	222000	2410000	77500	535000	7	11	14	17	6,5	290,8	332,2
300	x	**333**	53	49	46200	214000	2490000	83000	555000	7	11	14	17	6,74	300,8	322,2
320	x	**360**	65	59	59300	292000	3200000	114000	710000	10	15	20	25	10,9	321	359
340	x	**380**	65	59	63000	272000	3400000	128500	755000	10	15	20	25	11,5	341	379
360	x	**400**	65	59	66700	258000	3600000	144000	800000	10	15	20	25	12,2	361	399
380	x	**420**	65	59	70400	269000	3800000	160500	845000	10	15	20	25	12,8	381	419
400	x	**440**	65	59	74200	256000	4000000	178000	890000	10	15	20	25	13,5	401	439
420	x	**460**	65	59	77800	244000	4200000	196000	935000	10	15	20	25	14,1	421	459
440	x	**480**	65	59	81500	234000	4400000	215000	980000	10	15	20	25	14,7	441	479
460	x	**500**	65	59	85300	224000	4600000	235000	1020000	10	15	20	25	15,4	461	499
480	x	**520**	65	59	89000	239000	4800000	256000	1070000	10	15	20	25	16	481	519
500	x	**540**	65	59	92700	229000	5000000	278000	1110000	10	15	20	25	16,6	501	539

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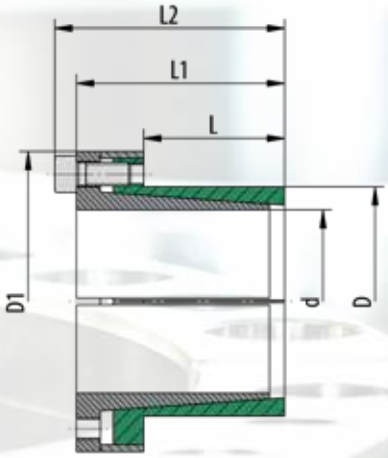
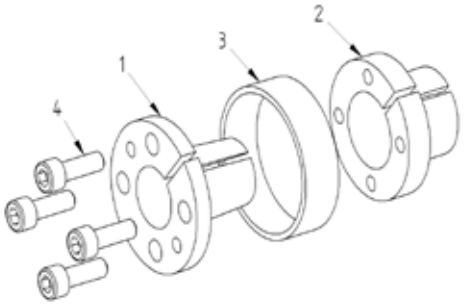
TAS 110



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
D_1	[mm]	Diameter of the bush	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght clamping surface of the hub	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Sleeve
3	Outer ring
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	MB max = 0,25 * Mt
Bending angle	max. 3´

More properties

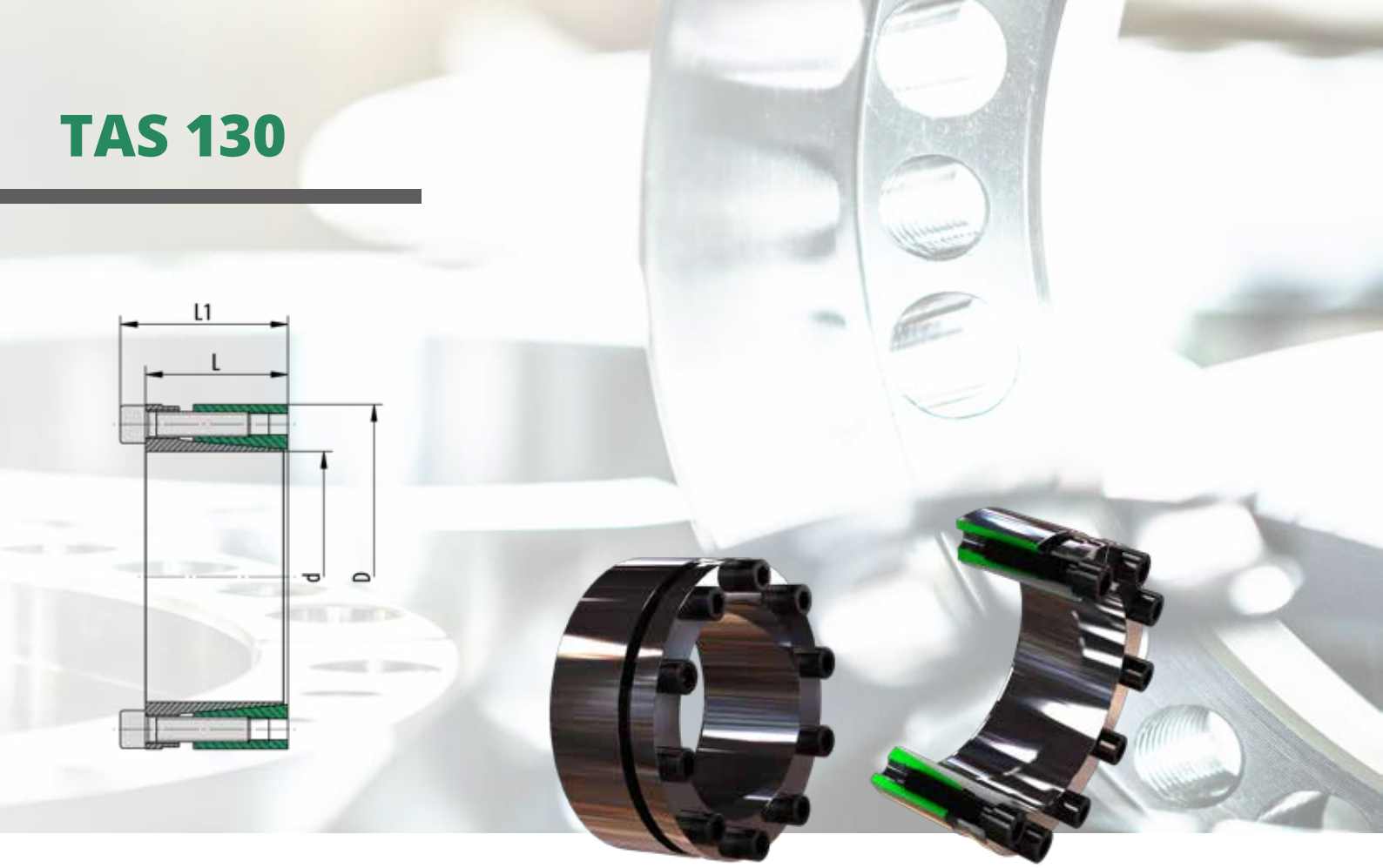
- no axial displacement during assembly
- good self-centering
- high self-locking

Ordering information: TAS 110 /d/D (e.g: TAS 110/10/16 ... further sizes on request)

TAS 110

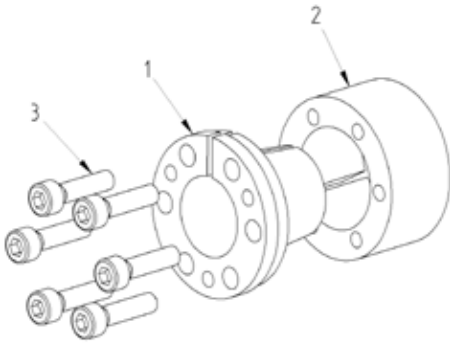
d mm		D mm	D_1 mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
6	x	**14**	25	11	3,8	158	68	4	M 3 x 10	2,6	10	21,5	24,5	0,04
8	x	**15**	27	26	6,5	185	98	3	M 4 x 10	5,6	11,5	25	29	0,06
9	x	**16**	28	37	8	174	98	4	M 4 x 10	5,6	14	26	30	0,06
9,525	x	**16**	29	39	8	165	98	4	M 4 x 10	5,6	14	26	30	0,06
10	x	**16**	29	42	8	158	98	4	M 4 x 10	5,6	14	26	30	0,06
11	x	**18**	32	50	9	167	100	4	M 4 x 10	5,6	13,5	26	30	0,07
12	x	**18**	32	55	9	151	100	4	M 4 x 10	5,6	13,5	26	30	0,07
14	x	**23**	38	100	14	197	120	6	M 4 x 10	5,6	14	26	30	0,11
15	x	**24**	44	145	19	209	130	4	M 6 x 18	15	16	36	42	0,22
16	x	**24**	44	155	19	196	130	4	M 6 x 18	15	16	36	42	0,22
17	x	**25**	45	162	19	185	125	4	M 6 x 18	15	16	36	42	0,22
17	x	**26**	47	180	23	185	122	4	M 6 x 18	17	18	38	44	0,23
18	x	**26**	47	200	23	177	120	4	M 6 x 18	17	18	38	44	0,23
19	x	**27**	48	210	23	170	120	4	M 6 x 18	17	18	38	44	0,24
20	x	**28**	49	220	23	166	120	4	M 6 x 18	17	18	38	44	0,25
22	x	**32**	54	250	23	104	70	4	M 6 x 18	17	25	45	51	0,33
24	x	**34**	56	270	23	99	70	4	M 6 x 18	17	25	45	51	0,35
25	x	**34**	56	280	23	95	70	4	M 6 x 18	17	25	45	51	0,34
28	x	**39**	61	480	34	127	90	6	M 6 x 18	17	25	45	51	0,42
30	x	**41**	62	510	34	116	84	6	M 6 x 18	17	25	45	51	0,43
32	x	**43**	65	730	46	154	115	8	M 6 x 18	17	25	45	51	0,50
35	x	**47**	69	800	46	111	81	8	M 6 x 18	17	30	50	56	0,55
38	x	**50**	72	860	46	102	76	8	M 6 x 18	17	30	50	56	0,60
40	x	**53**	75	900	46	96	72	8	M 6 x 18	17	30	50	56	0,65
42	x	**55**	78	1800	84	165	125	8	M 8 x 22	41	32	57	65	0,85
45	x	**59**	85	1900	84	118	89	8	M 8 x 22	41	40	65	73	1,10
48	x	**62**	87	2000	84	99	75	8	M 8 x 22	41	45	70	78	1,10
50	x	**65**	92	2600	105	118	90	10	M 8 x 22	41	45	70	78	1,30
55	x	**71**	98	2900	105	94	70	10	M 8 x 22	41	50	75	83	1,50
60	x	**77**	104	3100	105	90	70	10	M 8 x 22	41	50	75	83	1,70
65	x	**84**	111	3400	105	79	60	10	M 8 x 22	41	50	75	83	2,00
70	x	**90**	119	5800	170	103	80	10	M 10 x 25	83	60	91	101	2,80
75	x	**95**	126	6200	170	91	70	10	M 10 x 25	83	60	91	101	3,00
80	x	**100**	131	8000	200	100	80	12	M 10 x 25	83	65	96	106	3,30
85	x	**106**	137	8500	200	89	70	12	M 10 x 25	83	65	96	106	3,60
90	x	**112**	143	11200	250	112	90	15	M 10 x 25	83	65	96	106	3,90
95	x	**120**	153	11800	250	102	80	15	M 10 x 25	83	65	96	106	4,60
100	x	**125**	162	14600	300	120	95	12	M 12 x 30	145	65	102	114	5,50
110	x	**140**	180	16000	300	77	61	12	M 12 x 30	145	90	128	140	8,30
120	x	**155**	198	17400	300	72	55	12	M 12 x 30	145	90	128	140	10,30
130	x	**165**	208	25000	389	87	69	16	M 12 x 30	145	90	128	140	10,60

TAS 130



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Width of the locking device without screws	
L_1	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Pressure ring
3	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	MB max = 0,35 * Mt
Bending angle	max. 5´

More properties

- low axial displacement during assembly
- good self-centering
- high self-locking

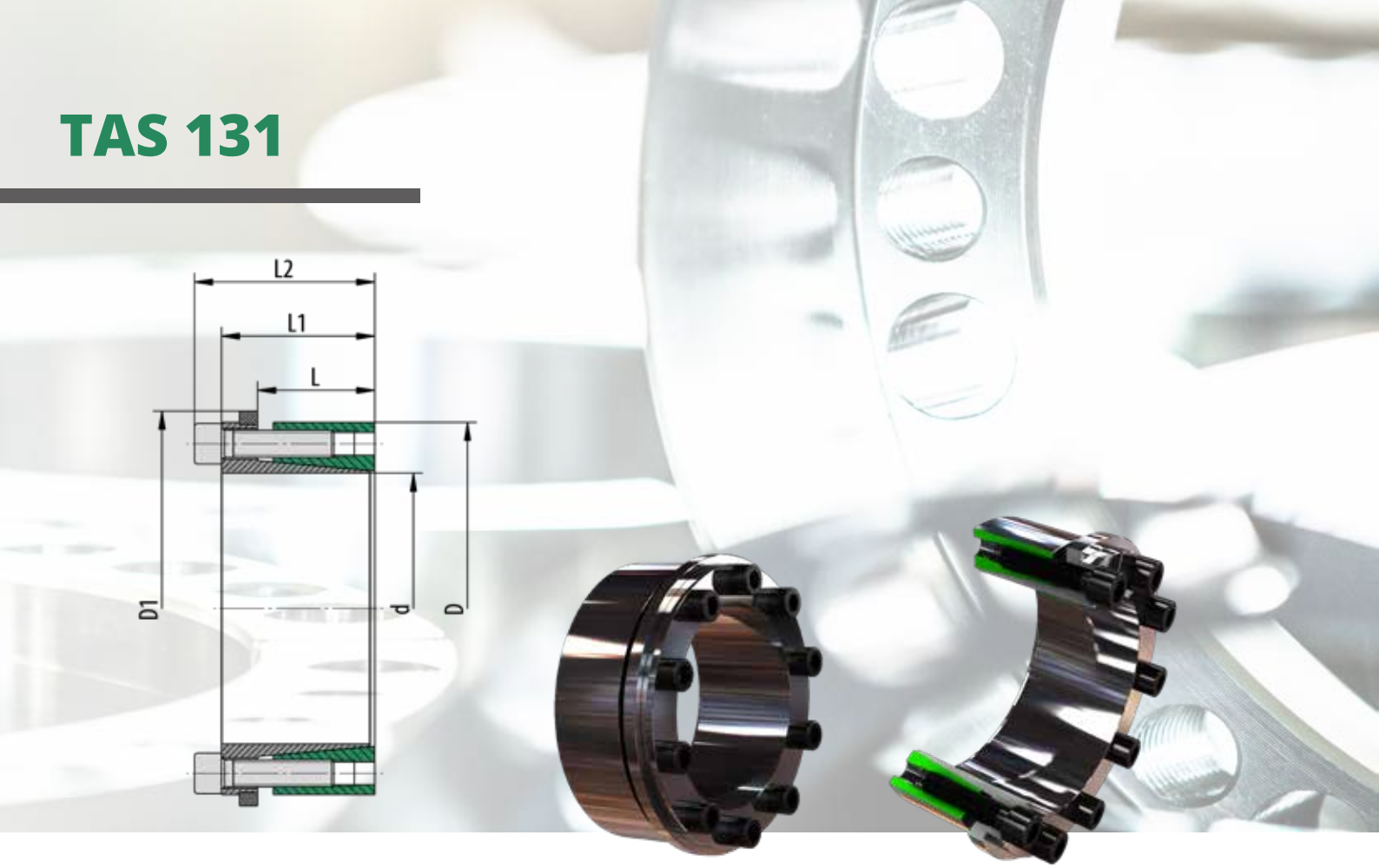
Ordering information: TAS 130 /d/D (e.g: TAS 130/20/47 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

TAS 130

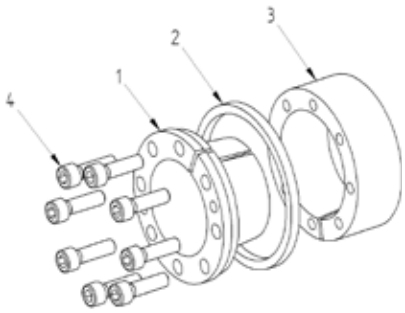
d mm		D mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	Weight kg
20	**x**	**47**	530	52	264	110	6	M 6 x 25	17	42	48	0,41
22	**x**	**47**	580	52	239	110	6	M 6 x 25	17	42	48	0,38
24	**x**	**50**	630	52	217	100	6	M 6 x 25	17	42	48	0,42
25	**x**	**50**	660	52	208	100	6	M 6 x 25	17	42	48	0,41
28	**x**	**55**	740	52	194	100	6	M 6 x 25	17	42	48	0,50
30	**x**	**55**	790	70	182	100	6	M 6 x 25	17	42	48	0,47
32	**x**	**60**	1150	70	226	120	8	M 6 x 25	17	42	48	0,56
35	**x**	**60**	1300	70	209	120	8	M 6 x 25	17	42	48	0,53
38	**x**	**65**	1300	70	188	110	8	M 6 x 25	17	42	48	0,62
40	**x**	**65**	1400	70	180	110	8	M 6 x 25	17	42	48	0,57
42	**x**	**75**	2000	100	209	120	6	M 8 x 30	41	51	59	1,01
45	**x**	**75**	2200	100	197	120	6	M 8 x 30	41	51	59	0,98
48	**x**	**80**	3200	130	249	150	8	M 8 x 30	41	51	59	1,09
50	**x**	**80**	3300	130	239	150	8	M 8 x 30	41	51	59	1,07
55	**x**	**85**	3600	130	215	140	8	M 8 x 30	41	51	59	1,15
60	**x**	**90**	3900	130	194	130	8	M 8 x 30	41	51	59	1,23
65	**x**	**95**	4300	130	177	120	8	M 8 x 30	41	51	59	1,32
70	**x**	**110**	7500	210	203	130	8	M 10 x 30	83	61	71	2,18
75	**x**	**115**	8000	210	196	130	8	M 10 x 30	83	61	71	2,30
80	**x**	**120**	8500	210	179	120	8	M 10 x 30	83	61	71	2,44
85	**x**	**125**	11400	270	217	150	10	M 10 x 30	83	61	71	2,55
90	**x**	**130**	12000	270	201	140	10	M 10 x 30	83	61	71	2,67
95	**x**	**135**	12600	280	190	135	10	M 10 x 30	83	61	71	2,80
100	**x**	**145**	15000	300	185	130	8	M 12 x 35	145	68	80	3,90
110	**x**	**155**	16500	300	167	120	8	M 12 x 35	145	68	80	4,20
120	**x**	**165**	22500	370	190	140	10	M 12 x 35	145	68	80	4,50
130	**x**	**180**	29000	450	206	150	12	M 12 x 35	145	68	80	5,50
140	**x**	**190**	32000	460	175	130	10	M 14 x 40	210	76	90	6,60
150	**x**	**200**	41000	550	198	150	12	M 14 x 40	210	76	90	6,90
160	**x**	**210**	44000	550	183	140	12	M 14 x 40	210	76	90	7,40
170	**x**	**225**	54500	640	210	160	14	M 14 x 40	210	76	90	8,60
180	**x**	**235**	57500	640	190	150	14	M 14 x 40	210	76	90	9,10
190	**x**	**250**	65000	689	191	146	15	M 14 x 40	210	76	90	10,60
200	**x**	**260**	68000	689	183	141	15	M 14 x 40	210	76	90	11,20
220	**x**	**285**	82000	747	141	109	12	M 16 x 50	325	98	114	17,70

TAS 131



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
D_1	[mm]	Diameter of the bush	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Distance of the pressure ring	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Distance ring
3	Pressure ring
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	MB max = 0,35 * Mt
Bending angle	max. 5´

More properties

- no axial displacement during assembly
- good self-centering
- high self-locking

Ordering information: TAS 131 /d/D (e.g: TAS 131/20/47 ... further sizes on request)

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

TAS 131

d mm		D mm	D_1 mm	M_t Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Weight kg
20	**x**	**47**	53	320	33	170	70	6	M 6 x 25	17	31	42	48	0,42
22	**x**	**47**	53	360	33	153	70	6	M 6 x 25	17	31	42	48	0,39
24	**x**	**50**	56	390	33	144	70	6	M 6 x 25	17	31	42	48	0,43
25	**x**	**50**	56	400	33	138	70	6	M 6 x 25	17	31	42	48	0,42
28	**x**	**55**	61	450	33	120	60	6	M 6 x 25	17	31	42	48	0,51
30	**x**	**55**	61	490	33	112	60	6	M 6 x 25	17	31	42	48	0,48
32	**x**	**60**	66	690	43	136	70	8	M 6 x 25	17	31	42	48	0,57
35	**x**	**60**	66	750	43	124	70	8	M 6 x 25	17	31	42	48	0,54
38	**x**	**65**	71	820	43	120	70	8	M 6 x 25	17	31	42	48	0,63
40	**x**	**65**	71	860	43	113	70	8	M 6 x 25	17	31	42	48	0,58
42	**x**	**75**	81	1300	60	126	70	6	M 8 x 30	41	35	51	59	1,02
45	**x**	**75**	81	1400	60	118	70	6	M 8 x 30	41	35	51	59	0,99
48	**x**	**80**	86	1900	80	150	90	8	M 8 x 30	41	35	51	59	1,10
50	**x**	**80**	86	2000	80	144	90	8	M 8 x 30	41	35	51	59	1,08
55	**x**	**85**	91	2200	80	136	90	8	M 8 x 30	41	35	51	59	1,16
60	**x**	**90**	96	2400	80	120	80	8	M 8 x 30	41	35	51	59	1,24
65	**x**	**95**	101	2600	80	105	70	8	M 8 x 30	41	35	51	59	1,33
70	**x**	**110**	119	4600	130	126	80	8	M 10 x 30	83	46	61	71	2,29
75	**x**	**115**	124	5000	130	120	80	8	M 10 x 30	83	46	61	71	2,41
80	**x**	**120**	129	5200	130	107	70	8	M 10 x 30	83	46	61	71	2,56
85	**x**	**125**	134	7000	170	132	90	10	M 10 x 30	83	46	61	71	2,67
90	**x**	**130**	139	7400	170	117	80	10	M 10 x 30	83	46	61	71	2,80
95	**x**	**135**	144	7800	170	114	80	10	M 10 x 30	83	46	61	71	2,93
100	**x**	**145**	155	9800	190	115	80	8	M 12 x 35	145	52	68	80	4,10
110	**x**	**155**	165	10700	190	101	70	8	M 12 x 35	145	52	68	80	4,40
120	**x**	**165**	175	14600	240	122	90	10	M 12 x 35	145	52	68	80	4,72
130	**x**	**180**	188	19000	300	137	100	12	M 12 x 35	145	52	68	80	5,74
140	**x**	**190**	199	23000	330	123	90	10	M 14 x 40	230	58	76	90	6,92
150	**x**	**200**	209	30000	400	136	100	12	M 14 x 40	230	58	76	90	7,24
160	**x**	**210**	219	32000	400	132	100	12	M 14 x 40	230	58	76	90	7,76
170	**x**	**225**	134	39000	460	145	110	14	M 14 x 40	230	58	76	90	8,98
180	**x**	**235**	244	41000	460	133	100	14	M 14 x 40	230	58	76	90	9,50
190	**x**	**250**	259	46400	488	137	104	15	M 14 x 40	230	58	76	90	11,10
200	**x**	**260**	269	48800	488	131	100	15	M 14 x 40	230	58	76	90	11,70
220	**x**	**285**	294	59900	544	103	79	12	M 16 x 50	360	72	98	114	18,30

TAS SCHÄFER

Friction Springs
Industrial Buffers

Damping technology

Function and structure

Friction springs Type TAS

The primary function of a friction spring is the damping / absorbing of introduced energy. A friction spring consists of closed outer and inner rings which intermesh with their conical surfaces. As a result of the energy introduced axially, the outer and inner rings on the conical surfaces are shifted apart from each other so that the spring column is shortened. This has the effect that the outer rings stretch and the inner rings reduce in diameter. As a result of the friction arising on the conical surfaces, the introduced energy is absorbed and converted into heat which is to be removed. Resonance effects are suppressed completely.

Principle of the friction spring

Friction springs consist of outer and inner rings which contact each other on their conical surfaces, with the application of a special lubricant.

If an axial load acts on the friction spring, the conical surfaces slide over one another and cause the outer rings to be lengthened (stretched) and the inner rings to be shortened (compressed). The conical surfaces cause a force and path translation. As a result, a linear spring diagram is plotted.

An effective conical surface is designated as a spring element, i.e. half an outer ring and half an inner ring.

Friction springs are structured from similar-type outer and inner rings. As a result of changing the element number, any arbitrary spring travel can be achieved and, as a result, every level of spring stiffness. However, the end force always remains identical in case of different element numbers. Only the spring travel, as well as the spring length, change.

With the selection of the ring type, the outer and inner diameter, as well as the spring end force, are stipulated. On the other hand, the length spring, spring travel and work energy absorption depend on the number of elements. The necessary element number is calculated from the required spring travel s or the required spring work
W. e = stotal / se = Wtotal / We

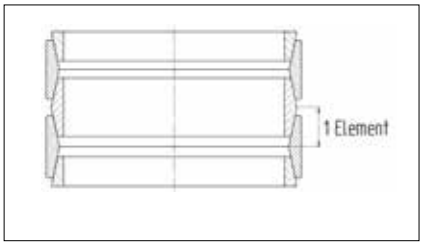


Fig. 1: Friction spring with 4 elements

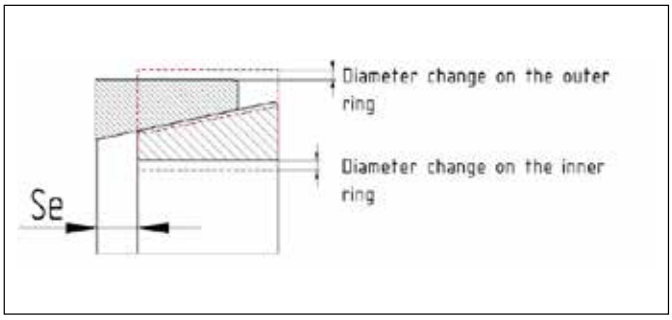


Fig. 2: Friction spring with diameter deviation

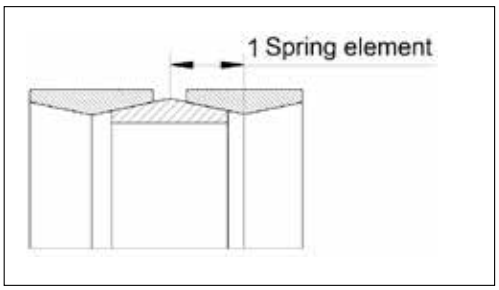


Fig 3: Drawing 2 outer rings and 1 inner ring

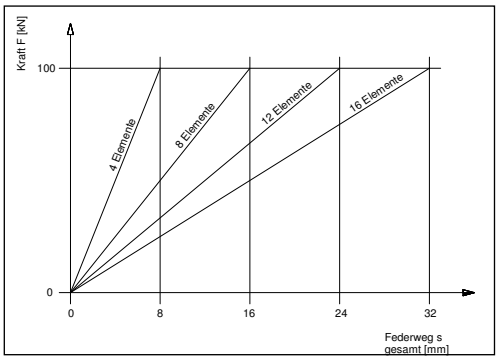


Fig. 4: Characteristic curve changeable by selection of ring number

Function and structure

Friction springs Type TAS

The friction spring should be designed as far as possible so that it comes to its end with half an inner rings on both sides. This is the most favorable variant. Thus the friction spring consists of:

2 Outer rings
1 Inner ring
2 Half inner rings

If, for construction-technical reasons, the friction spring must end with an uneven element number, it is composed as follows.

1 Outer ring
1 Inner ring
1 Half outer ring
1 Half inner ring

Alternatively, a friction spring can also end with 2 half outer rings or whole rings. If friction springs end with one or even two whole rings then, for the calculation of Lo, half the ring width or twice the half ring width are to be added.

Check: For all correctly composed friction springs, the following applies:

Element number e = sum of all spring rings minus 1

Also nothing changes here if the friction springs are closed off with whole spring rings instead of with half spring rings. The friction spring in Fig. 8 consists of 7 spring rings and accordingly has 7 - 1 = 6 elements. With the calculation of the spring length, half the ring width is also to be added.

With this, the non-stressed length Lo of the friction spring in Fig. 8 is
Lo = 6 x he + b/2
Values from friction spring table on page 9

For the verification of the spring length, it is not appropriate to measure the non-stressed spring length Lo.
Because of certain non-circularity values of the spring rings without a load and grease between the tapered surfaces, a spring length Lo which is too large is mostly measured.
So that the spring rings make complete contact on the tapered surfaces, measuring should be carried out under test load only.

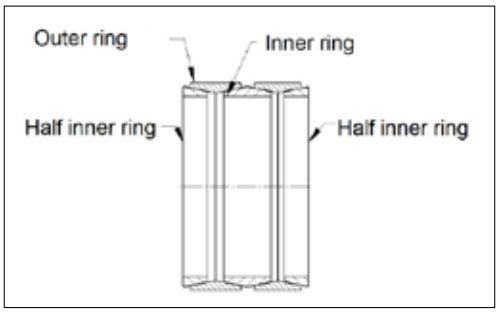


Fig. 5: Friction spring with two HIR

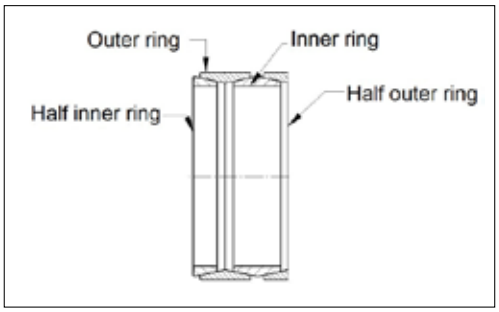


Fig. 6: Friction spring with HOR + HIR

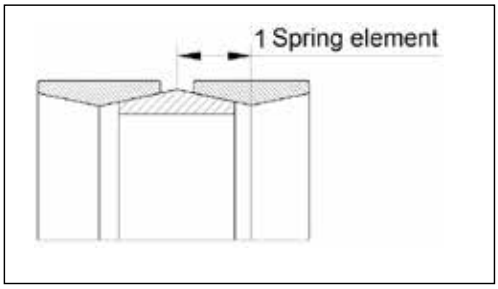


Fig. 7: Friction spring with whole rings at the end

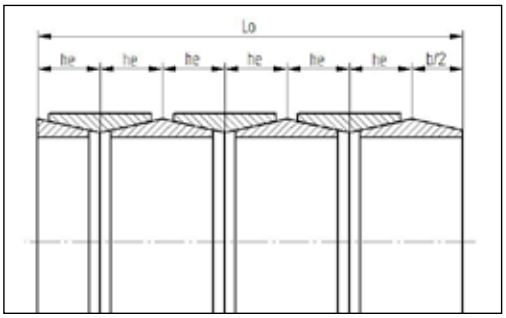


Fig. 8: Friction spring with 6 elements, ends 1 IR + 1 HIR

Construction notes

Pre-stressing:

Friction springs are to be pre-stressed with at least 5%, preferably with 10%, of the spring end force. The pre-stressing has the objective of bracing the spring rings against each other and of fixing their location with respect to each other and this has as result that a spring column is aligned in the axial direction.

In order not to impair the lubrication film on the tapered surfaces, the pre-stressing force should not be more than 50% of the later end force.

Guide:

Friction springs require an inner or outer guide. In the case of short friction springs (Lv ≤ 1.5 x D1) which are loaded between pressure plates guided parallel, a guide can be dispensed with. In case of long friction springs, it is recommended to brace these with two pre-stressed pots as friction spring cartridges.

Lubrication:

The selection of the lubricant has a large influence on the service life of the friction spring. Optimal spring characteristic values are achieved by the utilization of special lubricants. Therefore only authorized special lubricants should be used to ensure reliable function. On delivery, the friction springs are already lubricated. Since the service life of a friction spring is in the order of magnitude of the fatigue strength of a friction spring, a later lubrication is dispensed with.

Sealing:

In order not to impair the lubrication film in case of friction springs, these are to be installed protected against moisture and dust. Simple sliding guides mostly suffice. Otherwise we recommend the installation of a flexible bellows.

Characteristics

High level of spring work with low weight and volume:

Since the spring material is fully utilized by the friction spring, the dimensions and the weight can be reduced to a minimum. The spring work per element is the decisive variable here.

High damping:

As a result of the good damping of a friction spring, where this is 66% as standard, the energy introduced is absorbed quickly and reliably. Furthermore, resonance effects are suppressed completely.

Overload-secure in block setting:

As a result of their construction as block springs, it is ensured that the friction springs do not exceed their permissible stresses. This prevents damage to the friction springs.

Independent of the loading rate:

The loading rate is independent of the force-travel diagram. Even with small loading rates, friction springs offer full spring work and damping.

Diagram independence of the temperature:

In the temperature range -40°C to +80°C the characteristic curve of the friction spring is constant. This is different than in the case of hydraulic dampers or synthetic springs, where the force-travel diagram is influenced by fluctuations of temperature and self-heating. The self-heating due to damping is to be considered.

Zero maintenance:

A relubrication of the spring in operation is generally not necessary. The utilization of other lubricants can even lead to failure of the friction spring.

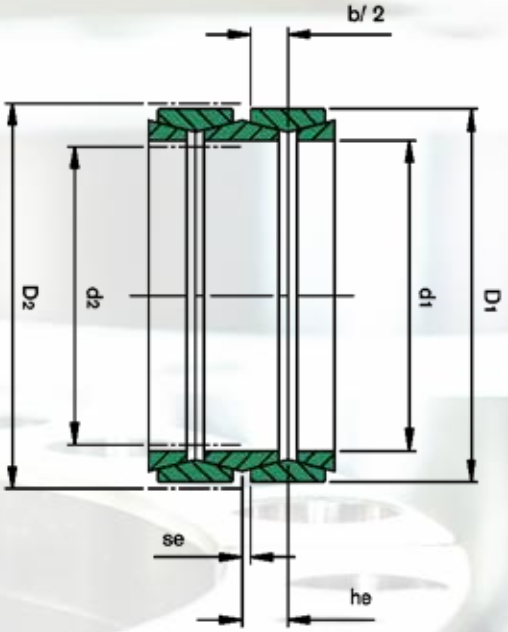
Can be individually arranged to suit the case of application:

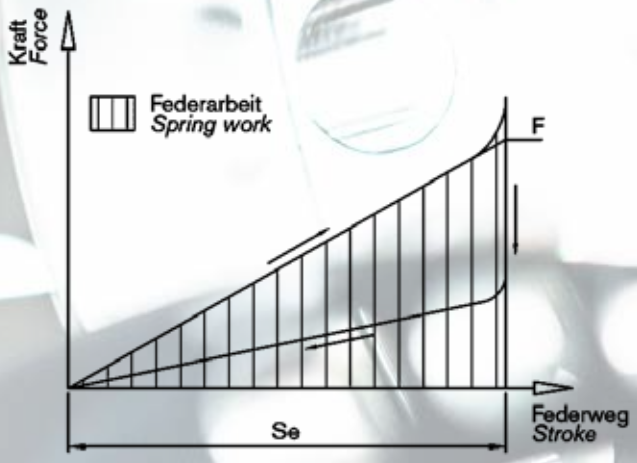
As well as our standard friction springs, we are also glad to offer you solutions individually tailored to your requirements.

Parallel and series switching:

Given the option to arrange the spring column in 2 different ways, it is possible to use the installation space even more effectively.

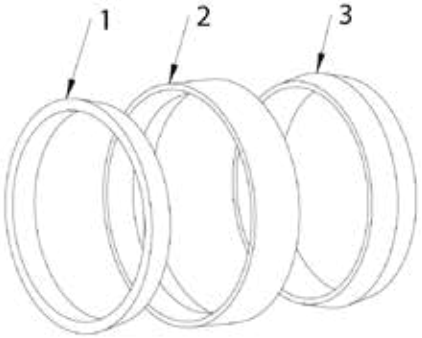
Friction springs





Used symbols

F	[kN]	Spring end force
se	[mm]	Spring travel for one element
he	[mm]	Element height
We	[J]	Energy absorption (work of one element)
D1	[mm]	Outer diameter
d1	[mm]	Inner diameter
b/2	[mm]	Half width of the ring
D2	[mm]	Outer diameter of guide components
d2	[mm]	Inner diameter of guide components



Order specification:
Type-Number of spring elements.Index
(e.g.: 06300-4.xxxx*)
*Sequential number:
includes references to further product data

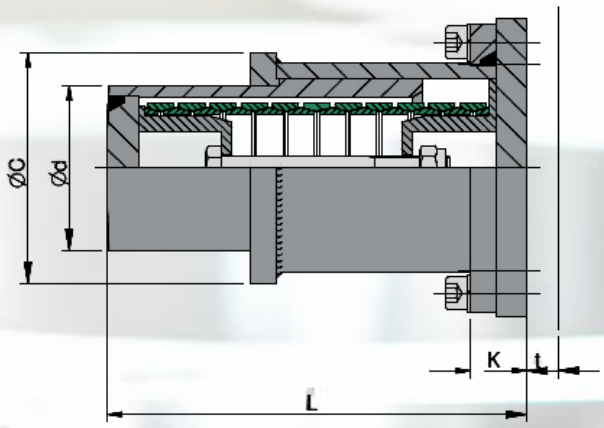
Friction Springs

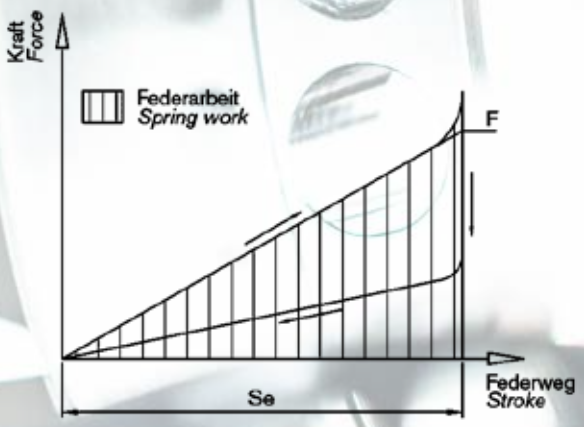
Standard dimensions

Type	F kN	S_e mm	h_e mm	W_e J	D_1 mm	d_1 mm	$b/2$ mm	D_2 mm	d_2 mm	Weight kg
01800	5	0,4	2,2	1,0	18,1	14,4	1,8	18,7	13,9	0,002
02500	9	0,6	3,1	2,7	25,0	20,8	2,5	25,9	20,1	0,004
03200	14	0,8	4,0	5,6	32,0	27,0	3,2	33,1	26,1	0,007
03800	20	0,9	4,7	9,0	38,0	31,7	3,8	39,3	30,6	0,012
04200	27	1,0	5,2	13,5	42,2	34,6	4,2	43,6	33,4	0,017
04800	35	1,1	5,9	19,3	48,2	39,4	4,8	49,8	38,1	0,026
05500	42	1,3	6,8	27,3	55,0	46,0	5,5	56,7	44,5	0,035
06300	55	1,4	7,7	38,5	63,0	51,9	6,3	64,9	50,3	0,056
07000	67	1,6	8,6	53,6	70,0	58,2	7,0	72,1	56,4	0,074
08000	84	1,8	9,8	75,6	80,0	67,0	8,0	83,0	64,0	0,105
09000	100	2,0	11,0	100,0	90,0	75,5	9,0	93,0	72,5	0,145
10000	125	2,2	12,2	137,5	100,0	83,6	10,0	103,0	81,0	0,203
12400	200	2,6	15,0	260,0	124,0	102,0	12,4	127,0	99,0	0,410
13000	160	2,6	15,0	208,0	130,0	111,5	12,4	133,0	108,5	0,376
14000	250	3,0	17,0	375,0	140,0	116,0	14,0	143,0	113,0	0,576
16600*	350	3,7	20,0	648,0	166,0	134,0	16,0	170,0	130,0	0,870
19600	600	4,4	23,4	1320	194,0	155,0	19,0	199,0	150,0	1,680
20000	510	3,9	22,4	995,0	198,0	161,0	18,5	202,0	157,0	1,570
22000	720	4,4	26,4	1584,0	220,0	174,0	22,0	224,0	170,0	2,600
26200	860	4,8	25,8	2064,0	262,0	208,0	21,0	266,0	204,0	3,426
30000	1.000	5,8	35,8	2900,0	300,0	250,0	30,0	305,0	245,0	5,530
32000	1.250	6,2	38,2	3875,0	320,0	263,0	32,0	326,0	258,0	7,100

*Type 16600 is not a block spring and a seperate stroke limit must be provided

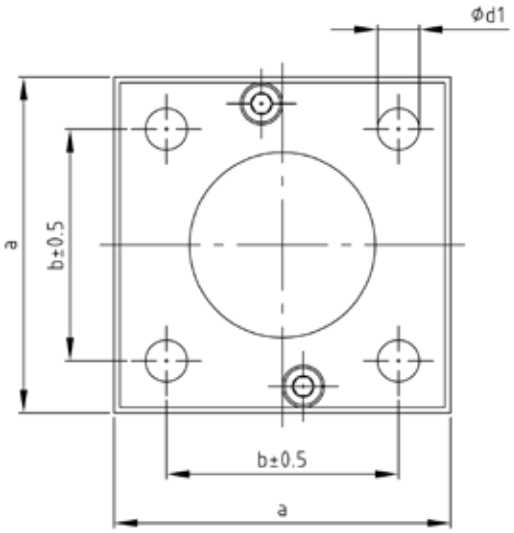
IPA 1





Used symbols

m	[kg]	Weight
Fv	[kN]	Pretensioning force
F	[kN]	Spring force
s	[mm]	Spring travel
W	[J]	Spring work
L	[mm]	Total length
d	[mm]	Plunger diameter
C	[mm]	Case diameter
K	[mm]	Flange thickness
a	[mm]	Flange dimension
b	[mm]	Hole size
d1	[mm]	Flange boring
t	[mm]	Support wall thickness



Order specification:
IPA1-Sz.-Type.Index
(e.g.: IPA1-1-06300.xxxx*)

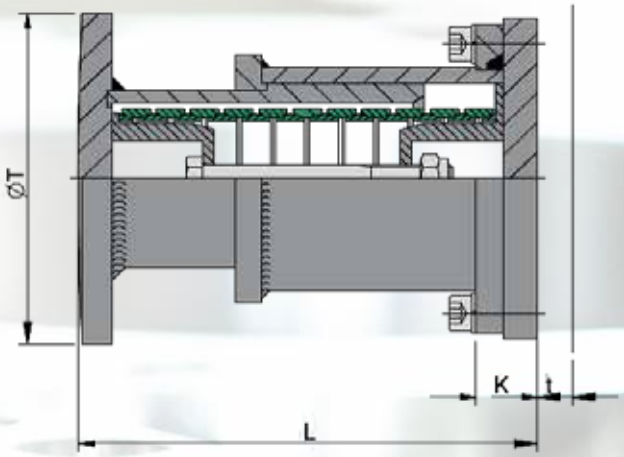
*Sequential number:
includes references to further product data

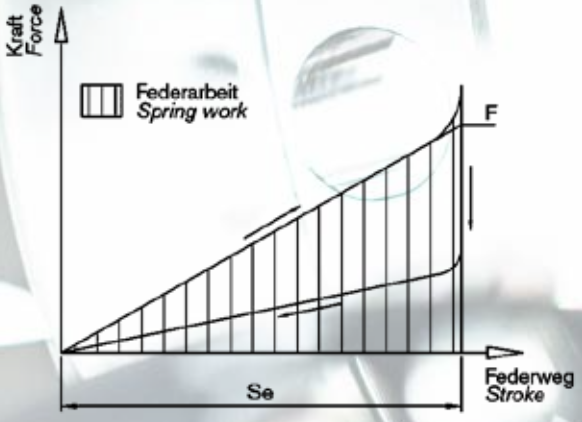
IPA 1

Standard dimensions

Sz.	Type	Diagram values				Dimensions of the buffer					Connection dimensions			
		F_V	F	s	W	L	d	C	K	a	b	d_1	t	m
		kN	kN	mm	J	mm	mm	mm	mm	mm	mm	mm	mm	kg
1		6	55	27,4	830	202	80	112	27	145	100	18	15	10,5
2		6	55	37,0	1120	262	80	112	27	145	100	18	15	12,5
3	**06300**	6	55	54,8	1670	374	80	112	27	145	100	18	15	16,7
4		6	55	64,4	1960	434	80	112	27	145	100	18	15	19,2
5		6	55	74,0	2250	494	80	112	27	145	100	18	15	20,2
6		7	84	33,0	1500	230	96	122	27	160	110	18	15	13,4
7		7	84	46,0	2090	306	96	122	27	160	110	18	15	16,5
8	**08000**	7	84	66,0	3000	428	96	122	27	160	110	18	15	22,5
9		7	84	79,0	3590	505	96	122	27	160	110	18	15	26,2
10		7	84	92,0	4180	582	96	122	27	160	110	18	15	28,0
11		10	125	44,0	2970	300	114	142	31	185	130	23	20	22,2
12		10	125	60,5	4080	397	114	142	31	185	130	23	20	26,0
13	**10000**	10	125	89,0	6000	571	114	142	31	185	130	23	20	37,1
14		10	125	105,0	7080	667	114	142	31	185	130	23	20	41,8
15		10	125	121,0	8160	763	114	142	31	185	130	23	20	48,1
16		20	200	51,2	5630	365	142	178	34	215	155	23	20	39,0
17		20	200	64,8	7120	454	142	178	34	215	155	23	20	46,0
18	**12400**	20	200	102,4	11260	696	142	178	34	215	155	23	20	64,0
19		20	200	116,0	12760	784	142	178	34	215	155	23	20	75,0
20		20	200	130,0	14300	872	142	178	34	215	155	23	20	78,0
21		20	360	75,0	14250	500	184	230	47	270	200	27	25	98,0
22		20	360	95,0	18050	630	184	230	47	270	200	27	25	124,0
23	**16600**	20	360	142,0	26980	880	184	230	47	270	200	27	25	147,0
24		20	360	170,0	32300	1040	184	230	47	270	200	27	25	150,0
25		20	360	190,0	36100	1200	184	230	47	270	200	27	25	175,0

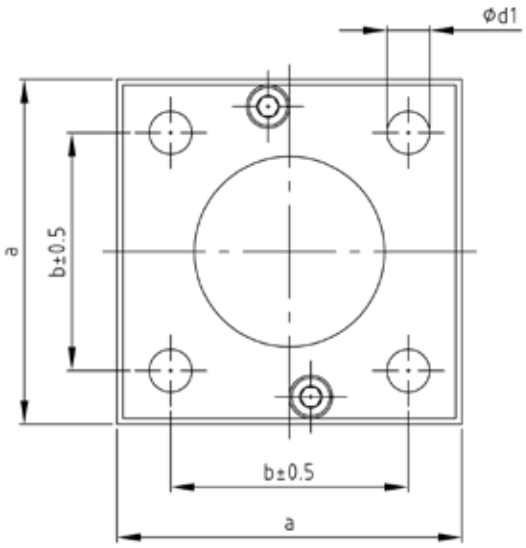
IPA 2





Used symbols

m	[kg]	Weight
Fv	[kN]	Pretensioning force
F	[kN]	Spring force
s	[mm]	Spring travel
W	[J]	Spring work
L	[mm]	Total length
T	[mm]	Baffle diameter
K	[mm]	Flange thickness
a	[mm]	Flange dimension
b	[mm]	Hole size
d1	[mm]	Flange boring
t	[mm]	Support wall thickness



Order specification:
IPA2-Sz.-Type.Index
(e.g.: IPA2-1-06300.xxxx*)

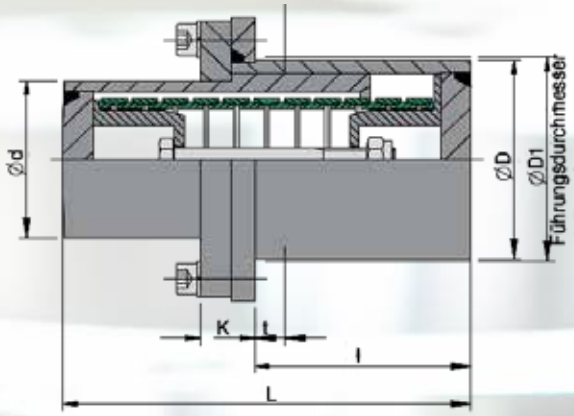
*Sequential number:
includes references to further product data

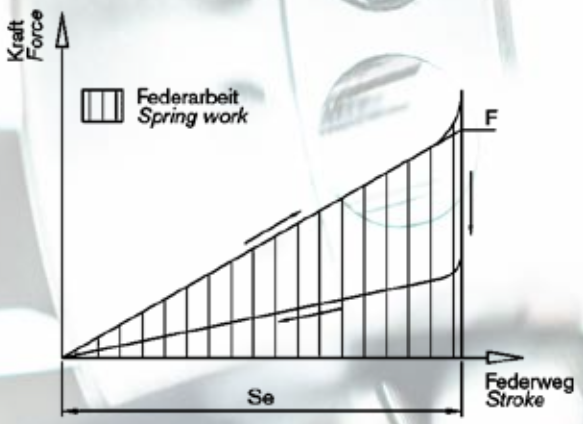
IPA 2

Standard dimensions

		Diagram values				Dimensions of the buffer				Connection dimensions			
Sz.	Type	F_V	F	s	W	L	T	K	a	b	d_1	t	m
		kN	kN	mm	J	mm	mm	mm	mm	mm	mm	mm	kg
1		6	55	27,4	830	202	150	27	145	100	18	15	12,0
2		6	55	37,0	1120	262	150	27	145	100	18	15	13,8
3	**06300**	6	55	54,8	1670	374	150	27	145	100	18	15	18,2
4		6	55	64,4	1960	434	150	27	145	100	18	15	20,8
5		6	55	74,0	2250	494	150	27	145	100	18	15	21,5
6		7	84	33,0	1500	230	200	27	160	110	18	15	16,3
7		7	84	46,0	2090	306	200	27	160	110	18	15	19,5
8	**08000**	7	84	66,0	3000	428	200	27	160	110	18	15	25,5
9		7	84	79,0	3590	505	200	27	160	110	18	15	29,6
10		7	84	92,0	4180	582	200	27	160	110	18	15	31,0
11		10	125	44,0	2970	300	250	31	185	130	23	20	30,0
12		10	125	60,5	4080	397	250	31	185	130	23	20	30,5
13	**10000**	10	125	89,0	6000	571	250	31	185	130	23	20	38,2
14		10	125	105,0	7080	667	250	31	185	130	23	20	44,8
15		10	125	121,0	8160	763	250	31	185	130	23	20	52,1
16		20	200	51,2	5630	365	250	34	215	155	23	20	45,0
17		20	200	64,8	7120	454	250	34	215	155	23	20	48,0
18	**12400**	20	200	102,4	11260	696	250	34	215	155	23	20	66,0
19		20	200	116,0	12760	784	250	34	215	155	23	20	77,0
20		20	200	130,0	14300	872	250	34	215	155	23	20	79,0
21		20	360	75,0	14250	500	250	47	270	200	27	25	101,0
22		20	360	95,0	18050	630	250	47	270	200	27	25	126,0
23	**16600**	20	360	142,0	26980	880	250	47	270	200	27	25	149,0
24		20	360	170,0	32300	1040	250	47	270	200	27	25	152,0
25		20	360	190,0	36100	1200	250	47	270	200	27	25	177,0

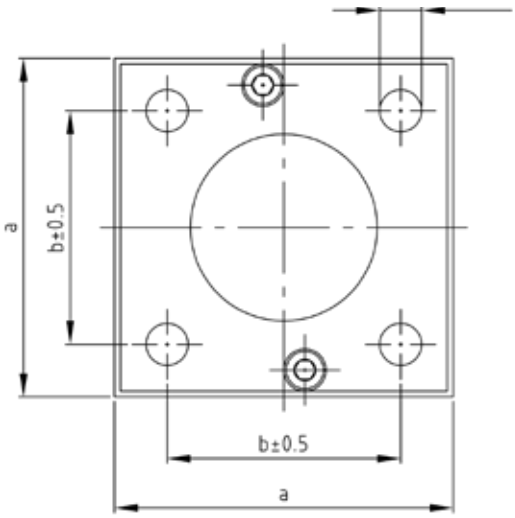
IPA 3





Used symbols

m	[kg]	Weight
Fv	[kN]	Pretensioning force
F	[kN]	Spring force
s	[mm]	Spring travel
W	[J]	Spring work
L	[mm]	Total length
l	[mm]	Dimple length
D	[mm]	Outer diameter
d	[mm]	Plunger diameter
K	[mm]	Flange thickness
a	[mm]	Flange dimension
b	[mm]	Hole size
d1	[mm]	Flange boring
D1	[mm]	Installation diameter
t	[mm]	Support wall thickness



Order specification:
IPA3-Sz.-Type.Index
(e.g.: IPA3-1-06300.xxxx*)

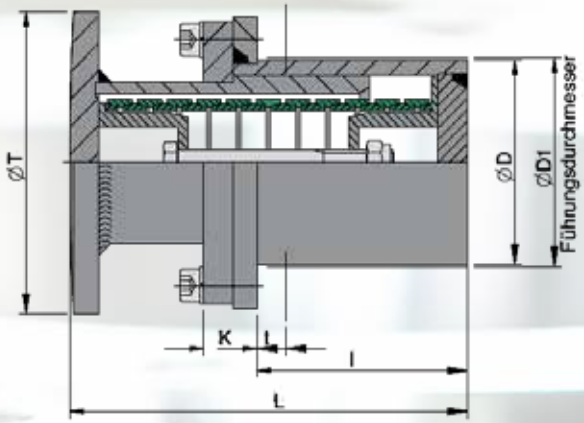
*Sequential number:
includes references to further product data

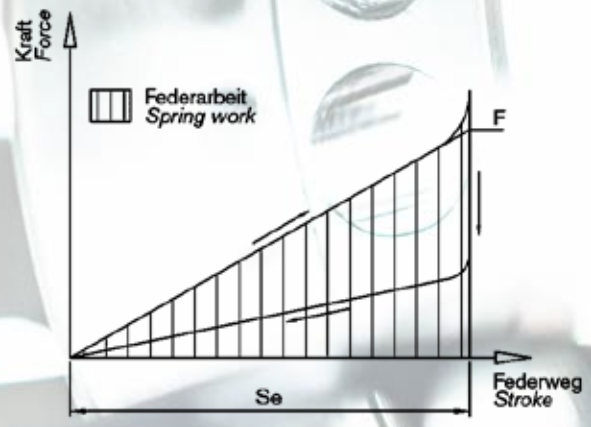
IPA 3

Standard dimensions

		Diagram values				Dimensions of the buffer						Connection dimensions				
Sz.	Type	F_V	F	s	W	L	l	D	d	K	a	b	d_1	D_1	t	m
		kN	kN	mm	J	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
1		6	55	27,4	830	202	107	102	80	27	145	100	18	104	15	10,2
2		6	55	37,0	1120	262	156	102	80	27	145	100	18	104	15	12,5
3	06300	6	55	54,8	1670	374	225	102	80	27	145	100	18	104	15	16,5
4		6	55	64,4	1960	434	293	102	80	27	145	100	18	104	15	19,1
5		6	55	74,0	2250	494	293	102	80	27	145	100	18	104	15	20,1
6		7	84	33,0	1500	230	125	114	96	27	160	110	18	117	15	13,5
7		7	84	46,0	2090	306	170	114	96	27	160	110	18	117	15	16,2
8	08000	7	84	66,0	3000	428	258	114	96	27	160	110	18	117	15	21,7
9		7	84	79,0	3590	505	355	114	96	27	160	110	18	117	15	25,8
10		7	84	92,0	4180	582	360	114	96	27	160	110	18	117	15	27,5
11		10	125	44,0	2970	300	165	133	114	31	185	130	23	135	20	21,5
12		10	125	60,5	4080	397	230	133	114	31	185	130	23	135	20	26,0
13	10000	10	125	89,0	6000	571	350	133	114	31	185	130	23	135	20	36,7
14		10	125	105,0	7080	667	470	133	114	31	185	130	23	135	20	41,3
15		10	125	121,0	8160	763	470	133	114	31	185	130	23	135	20	45,3
16		20	200	51,2	5630	365	216	165	142	34	215	155	23	167	20	35,5
17		20	200	64,8	7120	454	275	165	142	34	215	155	23	167	20	45,0
18	12400	20	200	102,4	11260	696	456	165	142	34	215	155	23	167	20	64,0
19		20	200	116,0	12760	784	574	165	142	34	215	155	23	167	20	74,0
20		20	200	130,0	14300	872	550	165	142	34	215	155	23	167	20	78,0
21		20	360	75,0	14250	500	328	219	184	47	270	200	27	222	25	83,0
22		20	360	95,0	18050	630	450	219	184	47	270	200	27	222	25	106,0
23	16600	20	360	142,0	26980	880	660	219	184	47	270	200	27	222	25	148,0
24		20	360	170,0	32300	1040	687	219	184	47	270	200	27	222	25	151,0
25		20	360	190,0	36100	1200	850	219	184	47	270	200	27	222	25	176,0

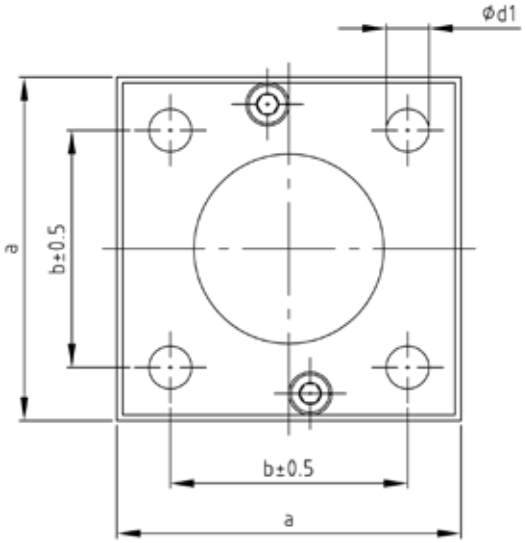
IPA 4





Used symbols

m	[kg]	Weight
Fv	[kN]	Pretensioning force
F	[kN]	Spring force
s	[mm]	Spring travel
W	[J]	Spring work
L	[mm]	Total length
l	[mm]	Dimple length
D	[mm]	Outer diameter
T	[mm]	Baffle diameter
K	[mm]	Flange thickness
a	[mm]	Flange dimension
b	[mm]	Hole size
d1	[mm]	Flange boring
D1	[mm]	Installation diameter
t	[mm]	Support wall thickness



Order specification:
IPA4-Gr.-Typ.Index
(e.g.: IPA4-1-06300.xxxx*)
*Sequential number:
includes references to further product data

IPA 4

Standard dimensions

		Diagram values				Dimensions of the buffer						Connection dimensions				
Sz.	Type	F_V	F	s	W	L	l	D	T	K	a	b	d_1	D_1	t	m
		kN	kN	mm	J	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
1		6	55	27,4	830	202	107	102	150	27	145	100	18	104	15	11,7
2		6	55	37,0	1120	262	156	102	150	27	145	100	18	104	15	13,4
3	**06300**	6	55	54,8	1670	374	225	102	150	27	145	100	18	104	15	18,0
4		6	55	64,4	1960	434	293	102	150	27	145	100	18	104	15	20,7
5		6	55	74,0	2250	494	293	102	150	27	145	100	18	104	15	21,4
6		7	84	33,0	1500	230	125	114	200	27	160	110	18	117	15	16,3
7		7	84	46,0	2090	306	170	114	200	27	160	110	18	117	15	19,2
8	**08000**	7	84	66,0	3000	428	258	114	200	27	160	110	18	117	15	24,7
9		7	84	79,0	3590	505	355	114	200	27	160	110	18	117	15	29,0
10		7	84	92,0	4180	582	360	114	200	27	160	110	18	117	15	30,4
11		10	125	44,0	2970	300	165	133	250	31	185	130	23	135	20	26,6
12		10	125	60,5	4080	397	230	133	250	31	185	130	23	135	20	29,0
13	**10000**	10	125	89,0	6000	571	350	133	250	31	185	130	23	135	20	37,8
14		10	125	105,0	7080	667	470	133	250	31	185	130	23	135	20	42,3
15		10	125	121,0	8160	763	470	133	250	31	185	130	23	135	20	51,6
16		20	200	51,2	5630	365	216	165	250	34	215	155	23	167	20	44,5
17		20	200	64,8	7120	454	275	165	250	34	215	155	23	167	20	47,5
18	**12400**	20	200	102,4	11260	696	456	165	250	34	215	155	23	167	20	65,6
19		20	200	116,0	12760	784	574	165	250	34	215	155	23	167	20	76,5
20		20	200	130,0	14300	872	550	165	250	34	215	155	23	167	20	78,4
21		20	360	75,0	14250	500	328	219	250	47	270	200	27	222	25	100,5
22		20	360	95,0	18050	630	450	219	250	47	270	200	27	222	25	125,0
23	**16600**	20	360	142,0	26980	880	660	219	250	47	270	200	27	222	25	148,2
24		20	360	170,0	32300	1040	687	219	250	47	270	200	27	222	25	151,2
25		20	360	190,0	36100	1200	850	219	250	47	270	200	27	222	25	177,0

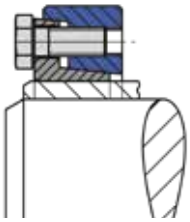
TAS SCHÄFER

Stainless products

TAS Schäfer GmbH • Osterfeldstraße 75 • 58300 Wetter

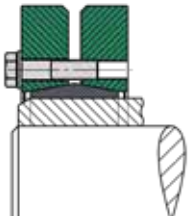
overview

Stainless products



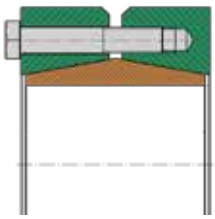
3173 1.4122 Shrink Disc 2-parts

Mini-Range, Medium corrosion resistance **page 180**



3071 1.4122 Shrink Disc 3-parts

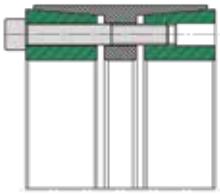
Standard-Range, Medium corrosion resistance **page 184**



W 1.4122 Shaft Coupling

Short shaft distance, Medium corrosion resistance

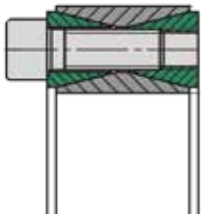
page 186



3012 S2 Locking Assembly

Very good self-centering, Wide installation lenght, Medium corrosion resistance

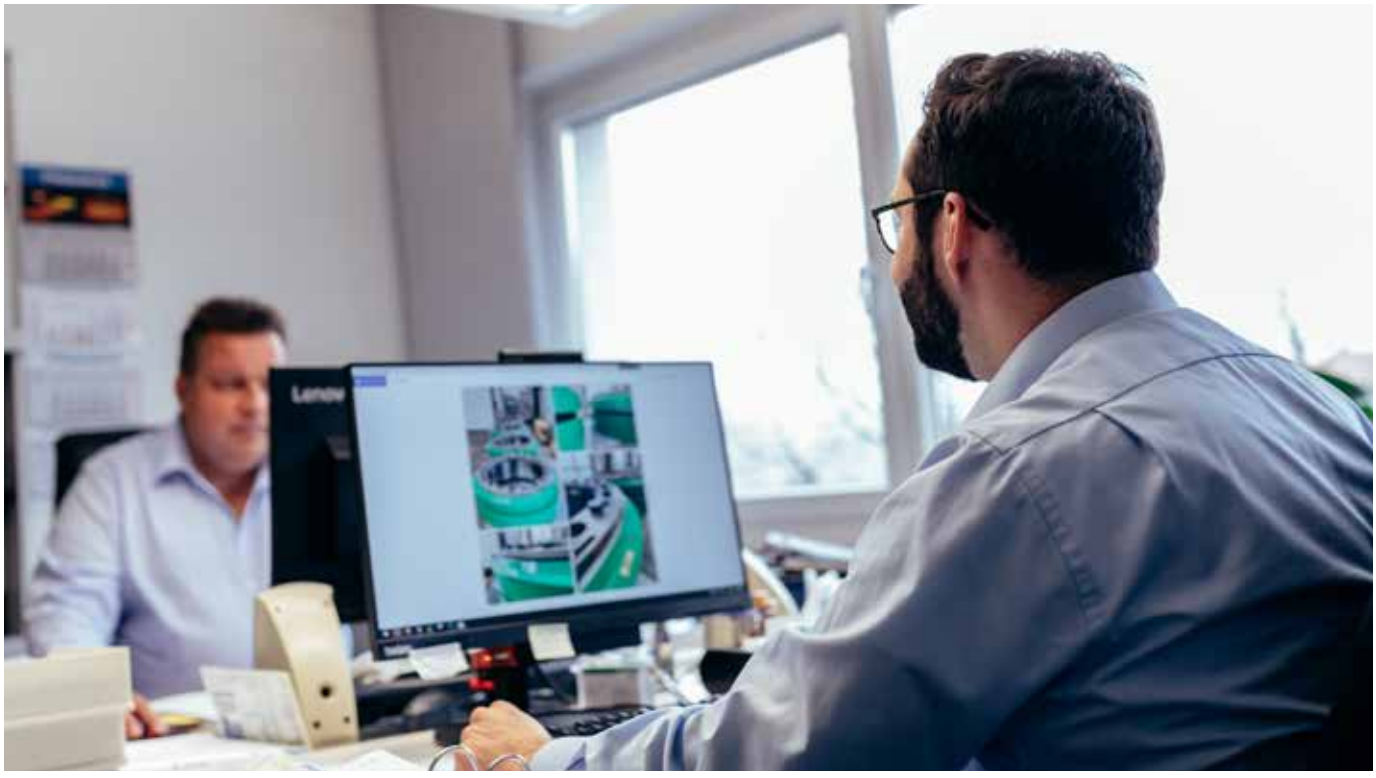
page 190



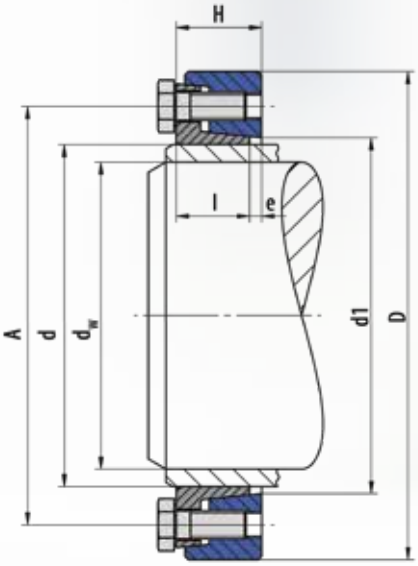
3020 S2 Locking Assembly

No self-centering, Short installation lenght, Medium corrosion resistance

page 192



3173 1.4122 2-parts (stainless)



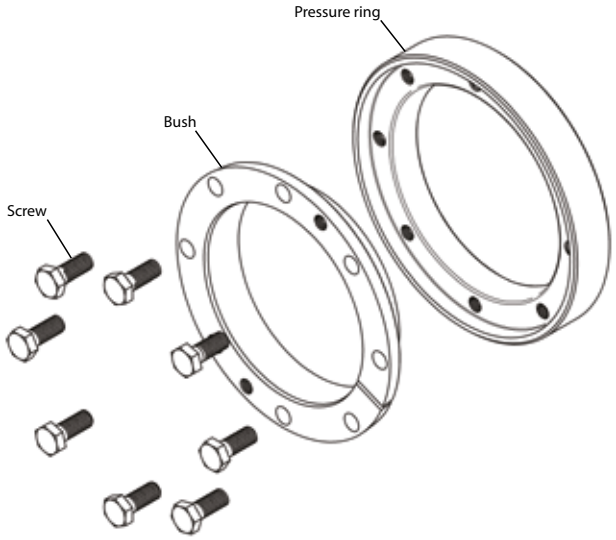
Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d1	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min-1]	Permitted rotational frequency
pN	[N/mm2]	Moderate pressure to the hub
I	[kgm2]	Moment of inertia

Design of the shrink disc

- Without Washers
- Bush complete slit
- Dimensions H & e in unlocked position

min. yield strength Rp0,2	N/mm²
solid shaft	240
Hub	290



Variation from the standard shaft diameter dW

> mm	≤ mm	minimal - mm	maximal + mm
20	60	-2	1
60	100	-2	2
100	160	-3	2
160	220	-4	2
220	300	-5	2

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

(see Basics - Calculation)

Ordering information: TAS 3173-d (e.g.: TAS 3173-100 1.4122 ... further sizes on request)

3173 1.4122 2-parts (stainless)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
24	20	85	50	11	2,5	13,5	38	25	8	6	M 6 x 12	933	A4-K80	11400	161	0,0000538	0,14
29	25	135	58	11	2,5	13,5	44	32	8	6	M 6 x 12	933	A4-K80	9800	150	0,0000964	0,18
34	29	160	64	11	2,5	13,5	50	38	8	6	M 6 x 12	933	A4-K80	8900	134	0,0001402	0,21
35	29	150	64	11	2,5	13,5	50	38	8	6	M 6 x 12	933	A4-K80	8900	135	0,0001387	0,21
38	34	235	69	11	2,5	13,5	55	43	8	6	M 6 x 12	933	A4-K80	8300	123	0,0001869	0,24
40	35	240	69	11	2,5	13,5	55	43	8	6	M 6 x 12	933	A4-K80	8300	124	0,0001826	0,23
44	36	280	80	15	3	18	62	49	8	6	M 6 x 16	933	A4-K80	7100	141	0,0004609	0,44
46	38	330	80	15	3	18	62	49	8	6	M 6 x 16	933	A4-K80	7100	142	0,0004518	0,42
47	40	400	80	15	3	18	62	49	8	6	M 6 x 16	933	A4-K80	7100	144	0,0004469	0,42
51	44	550	85	15	3	18	67	54	8	6	M 6 x 16	933	A4-K80	6700	124	0,0005627	0,46
56	48	570	90	15	3	18	72	59	8	8	M 6 x 16	933	A4-K80	6300	132	0,0006908	0,49
57	48	570	90	15	3	18	72	59	8	8	M 6 x 16	933	A4-K80	6300	130	0,0006818	0,48
61	53	680	95	15	3	18	76	64	8	8	M 6 x 16	933	A4-K80	6000	122	0,0008373	0,53
65	58	740	100	15	3	18	82	69	8	8	M 6 x 16	933	A4-K80	5700	108	0,0010174	0,57
66	58	740	100	15	3	18	82	69	8	8	M 6 x 16	933	A4-K80	5700	110	0,0010035	0,56
70	62	910	115	21	3	24	94	77	19	6	M 8 x 20	933	A4-K80	4900	106	0,0026163	1,15
72	63	940	115	21	3	24	94	77	19	6	M 8 x 20	933	A4-K80	4900	107	0,0025666	1,12
73	63	940	115	21	3	24	94	77	19	6	M 8 x 20	933	A4-K80	4900	111	0,0025402	1,10
75	67	1140	120	21	3	24	100	82	19	6	M 8 x 20	933	A4-K80	4700	101	0,0030441	1,21
76	68	1210	120	21	3	24	100	82	19	6	M 8 x 20	933	A4-K80	4700	103	0,0030170	1,20
78	68	1210	120	21	3	24	100	82	19	6	M 8 x 20	933	A4-K80	4700	102	0,0029536	1,15
81	73	1240	125	21	3	24	104	87	19	8	M 8 x 20	933	A4-K80	4500	92	0,0034868	1,26
83	75	1380	125	21	3	24	104	87	19	8	M 8 x 20	933	A4-K80	4500	95	0,0034103	1,21
85	77	1420	130	21	3	24	110	92	19	8	M 8 x 20	933	A4-K80	4400	92	0,0040762	1,35
86	78	1470	130	21	3	24	110	92	19	8	M 8 x 20	933	A4-K80	4400	92	0,0040037	1,32
88	80	1470	130	21	3	24	110	92	19	8	M 8 x 20	933	A4-K80	4400	95	0,0039124	1,27
93	83	1630	135	21	3,5	24,5	114	97	19	8	M 8 x 20	933	A4-K80	4200	92	0,0044621	1,33
94	85	1800	135	21	3,5	24,5	114	97	19	8	M 8 x 20	933	A4-K80	4200	94	0,0044054	1,30
96	88	1730	140	21	3,5	24,5	120	102	19	8	M 8 x 20	933	A4-K80	4000	83	0,0051883	1,44
98	90	1900	140	21	3,5	24,5	120	102	19	8	M 8 x 20	933	A4-K80	4000	86	0,0050617	1,39
100	92	2140	145	21	3,5	24,5	124	107	19	8	M 8 x 20	933	A4-K80	3900	91	0,0059567	1,53
103	95	2310	145	21	3,5	24,5	124	107	19	8	M 8 x 20	933	A4-K80	3900	92	0,0057132	1,44
106	98	2160	150	21	3,5	24,5	128	112	19	8	M 8 x 20	933	A4-K80	3800	82	0,0065889	1,56
108	100	2340	150	21	3,5	24,5	128	112	19	8	M 8 x 20	933	A4-K80	3800	84	0,0064189	1,50
112	103	2340	160	25	4	29	134	119	19	8	M 8 x 20	933	A4-K80	3500	87	0,0102798	2,16
115	105	2540	160	25	4	29	134	119	19	8	M 8 x 20	933	A4-K80	3500	91	0,0099175	2,04
120	110	3030	169	25	4	29	140	124	19	8	M 8 x 20	933	A4-K80	3400	98	0,0106519	2,06
123	113	2910	169	25	4	29	144	129	19	8	M 8 x 20	933	A4-K80	3300	90	0,0121135	2,22
125	115	3160	169	25	4	29	144	129	19	8	M 8 x 20	933	A4-K80	3300	93	0,0117986	2,14
130	120	3370	174	25	4	29	150	134	19	12	M 8 x 20	933	A4-K80	3200	89	0,0130255	2,21
135	125	3810	179	25	4	29	154	139	19	12	M 8 x 20	933	A4-K80	3200	92	0,0143352	2,28
138	128	3600	184	25	4	29	160	144	19	9	M 8 x 20	933	A4-K80	3100	92	0,0161739	2,45
140	130	3700	184	25	4	29	160	144	19	9	M 8 x 20	933	A4-K80	3100	94	0,0157304	2,35

3173 1.4122 2-parts (stainless)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	d_1 mm	M_A Nm	Z Pcs.	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
145	135	4200	189	25	4	29	164	149	19	12	M 8 x 20	933	A4-K80	3000	87	0,0172140	2,43
150	140	4450	194	25	4,5	29,5	170	154	19	12	M 8 x 20	933	A4-K80	2900	89	0,0187885	2,50
160	150	4900	204	25	4,5	29,5	180	164	19	12	M 8 x 20	933	A4-K80	2800	68	0,0222215	2,64
166	156	5100	214	25	4,5	29,5	190	174	19	12	M 8 x 20	933	A4-K80	2600	66	0,0276174	3,01
170	160	5300	214	25	4,5	29,5	190	174	19	12	M 8 x 20	933	A4-K80	2600	65	0,0260512	2,79
182	170	8350	230	28	5	33	206	186	19	16	M 8 x 20	933	A4-K80	2400	57	0,0393299	3,66
202	190	9670	250	28	5	33	224	206	19	16	M 8 x 20	933	A4-K80	2200	51	0,0518157	4,01
232	220	15450	280	28	6	34	254	236	19	16	M 8 x 20	933	A4-K80	2000	56	0,0751252	4,55
242	230	15700	290	28	6	34	264	246	19	16	M 8 x 20	933	A4-K80	1900	50	0,0842232	4,72
262	250	17000	310	28	6,5	34,5	284	266	19	18	M 8 x 20	933	A4-K80	1800	45	0,1045710	5,08

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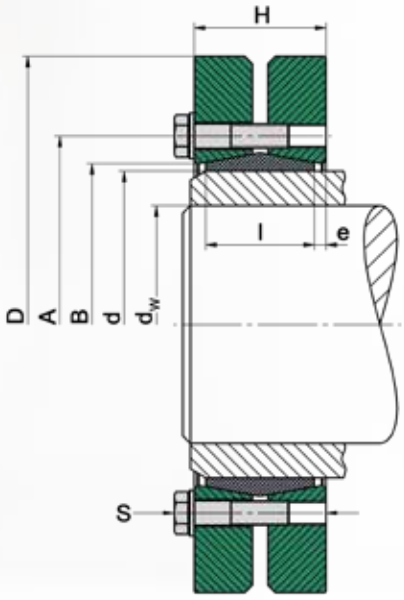
3071 1.4122 3-parts (stainless)



Used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[Nm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the inner ring
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
B	[mm]	Attachment size
M_A	[Nm]	Tightening torque of the clamping screws
Z		Number of clamping screws
S		Size of the clamping screws
n_{max}	[min^{-1}]	Permitted rotational frequency
p_N	[N/mm^2]	Moderate pressure to the hub
I	[kgm^2]	Moment of inertia

Design of the shrink disc

d < 115	Without washers
d ≥ 115	With washers

Dimensions H & e in unlocked position

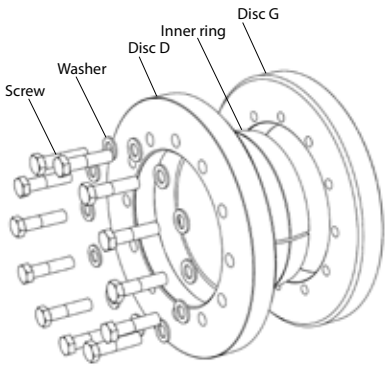
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

Variation from the standard shaft diameter d_W

> mm	≤ mm	minimal - mm	maximal + mm
10	30	-1	1
30	50	-3	2
50	140	-5	5
140	180	-10	5
180	320	-15	10
320	500	-20	10
500	700	-30	20
700	820	-40	20

$$M = M_{max\ (Catalog)} \left(\frac{d_{W\ (target)}}{d_{W\ (Catalog)}}\right)^2$$

(see Basics - Calculation)



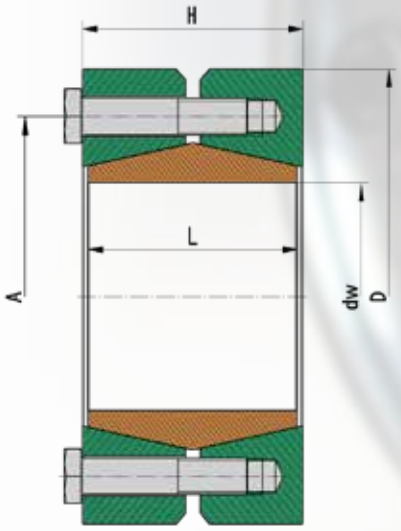
min. yield strength Rp0,2	N/mm^2
Solid shaft	240
Hub	290

Ordering information: TAS 3071 - d (z.B.: TAS 3071-200 1.4122 ... further sizes on request)
with Inbus: TAS 3071 - d - Inbus (z.B.: TAS 3071-200-Inbus 1.4122)

3071 1.4122 3-parts (stainless)

d mm	d_W mm	M_{max} Nm	D mm	l mm	e mm	H mm	A mm	B mm	M_A Nm	Z Stk	S	DIN	Class	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
14	11	24	37	9	1,5	12	24	15	2,4	3	M 4 x 10	933	A4-K80	15400	223	0,0000137	0,07
16	13	54	41	12	1,5	15	27	17	4,2	3	M 5 x 12	933	A4-K80	13900	213	0,0000266	0,11
18	15	74	43	12	1,5	15	29	19	3,3	4	M 5 x 12	933	A4-K80	13300	198	0,0000326	0,12
20	17	140	48	14	2,75	19,5	34	24	3,9	5	M 5 x 18	933	A4-K80	11900	226	0,0000642	0,19
21	18	160	48	14	2,75	19,5	34	24	3,9	5	M 5 x 18	933	A4-K80	11900	215	0,0000618	0,18
22	19	150	48	14	2,75	19,5	36	26	3,6	5	M 5 x 18	933	A4-K80	11900	190	0,0000627	0,18
24	20	160	50	14	2,5	19	36	26	3,3	6	M 5 x 18	933	A4-K80	11400	191	0,0000731	0,19
30	25	300	60	16	2,75	21,5	44	32	4,6	6	M 5 x 18	933	A4-K80	9500	187	0,0001687	0,30
36	30	440	72	18	2,75	23,5	52	38	8,2	5	M 6 x 20	933	A4-K80	7900	167	0,0003888	0,48
38	31	620	80	20	3	26	56	41	8,2	7	M 6 x 25	933	A4-K80	7100	199	0,0006569	0,67
40	32	500	75	19	2,75	24,5	57	43	8,2	6	M 6 x 20	933	A4-K80	7600	170	0,0004967	0,55
41	33	620	80	20	2,75	25,5	61	46	8	7	M 6 x 20	933	A4-K80	7100	180	0,0006465	0,64
44	35	640	80	20	2,75	25,5	61	47	8	7	M 6 x 20	933	A4-K80	7100	168	0,0006356	0,61
50	40	890	90	22	3	28	70	53	8,2	8	M 6 x 25	933	A4-K80	6300	157	0,0010998	0,83
55	45	1000	100	23	3,75	30,5	75	58	8,2	8	M 6 x 25	933	A4-K80	5700	137	0,0017909	1,1
62	50	1400	110	23	3,75	30,5	86	66	8,2	10	M 6 x 25	933	A4-K80	5200	151	0,0025909	1,3
68	55	1500	115	23	3,75	30,5	86	72	8,2	10	M 6 x 25	933	A4-K80	4900	138	0,0031236	1,4
75	60	2400	138	25	3,75	32,5	100	79	20	7	M 8 x 30	933	A4-K80	4100	162	0,0070923	2,3
80	65	2700	145	25	3,75	32,5	100	84	20	7	M 8 x 30	933	A4-K80	3900	152	0,0085703	2,5
90	70	4000	155	30	4,5	39	114	94	20	10	M 8 x 35	931	A4-K80	3600	161	0,0132516	3,3
100	75	4800	170	34	5	44	124	104	20	12	M 8 x 35	931	A4-K80	3300	154	0,0213950	4,4
110	80	5900	185	39	5,5	50	136	114	39,5	9	M 10 x 40	931	A4-K80	3000	145	0,0347437	6,0
115	80	6100	200	40	5	50	150	124	39,5	10	M 10 x 40	931	A4-K80	2800	150	0,0485678	7,3
120	85	10400	200	40	5	50	150	124	39,5	10	M 10 x 40	931	A4-K80	2800	144	0,0476000	7,0
125	90	8600	215	42	6	54	160	134	39,5	12	M 10 x 40	931	A4-K80	2600	158	0,0672619	8,7
140	100	11800	230	46	7,25	60,5	175	146	68	10	M 12 x 45	931	A4-K80	2400	157	0,0996875	11
155	110	15800	265	50	7,25	64,5	192	165	68	12	M 12 x 50	931	A4-K80	2100	156	0,1885000	16
165	120	25200	290	56	7,5	71	210	175	166	8	M 16 x 55	931	A4-K80	1900	175	0,3061438	22
175	130	27800	300	56	7,5	71	220	185	166	8	M 16 x 55	931	A4-K80	1900	165	0,3467969	23

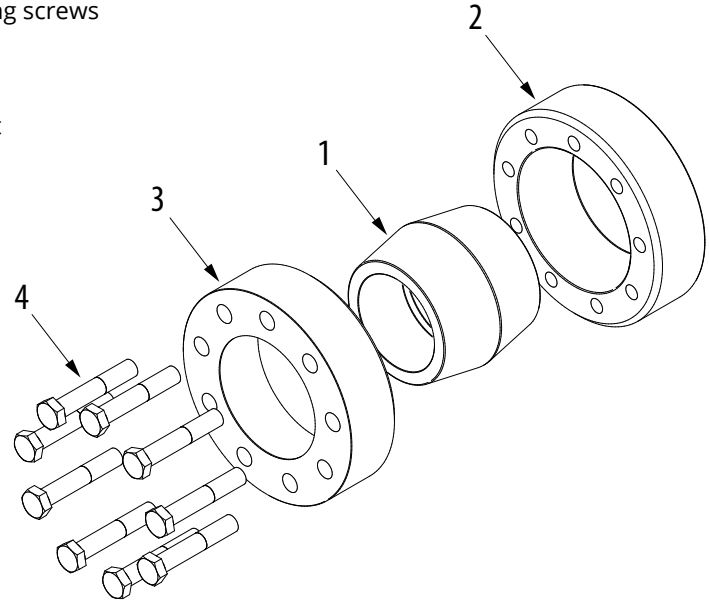
W 1.4122 (stainless)



Used symbols			
dw	[mm]	Shaft diameter	
M_{max}	[Nm]	max. transmittable torque	F_{ax} = 0
F_{ax}	[kN]	max. transmittable axial force	M_t = 0
D	[mm]	Outer diameter of coupling	
L	[mm]	Length of sleeve	
H	[mm]	Width of shaft coupling	
A	[mm]	Pitch circle diameter of bolting	
M_A		Required tightening torque of clamping screws	
Z		Number of screws	
S		Size of screws	
p_W	[N/mm²]	Average contact pressure on the shaft	

Design of the disc	
d < 070	Discs without washers
d ≥ 070	Discs with washers

Dimensions H & e in unlocked position



Pos.	Designation
1	Sleeve
2	Pressure ring G
3	Pressure ring Dg
4	Screw

Ordering information: TAS W-Typ/d1/ d2 (e.g: TAS W070/065/070 1.4122 ... further sizes on request)

W 1.4122 (stainless)

Type	d_w	M_{max}	F_{ax}	D	L	H	A	M_A	Z	S	DIN	Class	pw	Weight
	mm	Nm	kN	mm	mm	mm	mm	mm	Pcs.				N/mm²	Kg
W015	15	75	10	55	30	33	37	5,8	7	M5 x 25	933	A4-K80	95	0,5
W015	17	137	16	55	30	33	37	5,8	7	M5 x 25	933	A4-K80	135	0,5
W020	18	105	12	60	34	37	42	7,5	8	M6 x 30	931	A4-K80	81	0,7
W020	20	155	16	60	34	37	42	7,4	8	M6 x 30	931	A4-K80	97	0,7
W020	22	241	22	60	34	37	42	7,4	8	M6 x 30	931	A4-K80	125	0,7
W025	23	250	22	66	38	41	48	9,3	8	M6 x 30	931	A4-K80	106	0,8
W025	25	355	28	66	38	41	48	9,4	8	M6 x 30	931	A4-K80	127	0,8
W025	27	475	35	66	38	41	48	9,4	8	M6 x 30	931	A4-K80	146	0,8
W030	28	435	31	76	42	45	54	8,2	10	M6 x 35	931	A4-K80	113	1,3
W030	30	562	37	76	42	45	54	8,2	10	M6 x 35	931	A4-K80	127	1,3
W030	32	667	42	76	42	45	54	8,2	10	M6 x 35	931	A4-K80	132	1,3
W035	33	510	31	80	46	49	62	8,2	12	M6 x 35	931	A4-K80	87	1,5
W035	35	660	38	80	46	49	62	8,2	12	M6 x 35	931	A4-K80	100	1,5
W035	37	820	44	80	46	49	62	8,2	12	M6 x 35	931	A4-K80	111	1,5
W040	38	810	43	98	50	54	71	20	8	M8 x 40	931	A4-K80	96	2,5
W040	40	985	49	98	50	54	71	20	8	M8 x 40	931	A4-K80	105	2,5
W040	43	1280	60	98	50	54	71	20	8	M8 x 40	931	A4-K80	118	2,5
W050	44	1440	65	115	60	64	86	39,5	8	M10 x 45	931	A4-K80	106	4
W050	50	2190	88	115	60	64	86	39,5	8	M10 x 45	931	A4-K80	124	4
W050	54	2700	100	115	60	64	86	39,5	8	M10 x 45	931	A4-K80	131	4
W060	55	2560	93	125	70	74	98	39,5	10	M10 x 50	931	A4-K80	103	5,3
W060	60	3420	114	125	70	74	98	39,5	10	M10 x 50	931	A4-K80	116	5,3
W060	64	4200	131	125	70	74	98	39,5	10	M10 x 50	931	A4-K80	125	5,3
W070	65	4110	126	148	80	85	112	39,5	12	M10 x 60	931	A4-K80	104	8,4
W070	70	5200	149	148	80	85	112	39,5	12	M10 x 60	931	A4-K80	113	8,4
W070	74	6170	167	148	80	85	112	39,5	12	M10 x 60	931	A4-K80	120	8,4
W080	75	6950	185	170	94	99	130	68	12	M12 x 70	931	A4-K80	112	13,1
W080	80	8400	210	170	94	99	130	68	12	M12 x 70	931	A4-K80	119	13,1
W080	84	9280	221	170	94	99	130	68	12	M12 x 70	931	A4-K80	119	13,1
W090	85	8550	201	185	104	109	145	166	7	M16 x 80	931	A4-K80	99	17
W090	90	10250	228	185	104	109	145	166	7	M16 x 80	931	A4-K80	106	17
W090	94	11730	250	185	104	109	145	166	7	M16 x 80	931	A4-K80	111	17
W100	95	13400	335	200	114	119	158	166	9	M16 x 90	931	A4-K80	113	21
W100	100	15580	312	200	114	119	158	166	9	M16 x 90	931	A4-K80	119	21
W100	104	17450	336	200	114	119	158	166	9	M16 x 90	931	A4-K80	123	21
W110	105	19700	375	217	124	129	170	156	12	M16 x 90	931	A4-K80	125	27
W110	110	22400	407	217	124	129	170	156	12	M16 x 90	931	A4-K80	129	27
W110	114	24750	434	217	124	129	170	156	12	M16 x 90	931	A4-K80	133	27
W120	115	25800	449	235	134	139	184	166	13	M16 x 90	931	A4-K80	126	33
W120	120	28960	483	235	134	139	184	166	13	M16 x 90	931	A4-K80	130	33
W120	124	31260	504	235	134	139	184	166	13	M16 x 90	931	A4-K80	131	33

W 1.4122 (stainless)

Type mm	d_w mm	M_{max} Nm	F_{ax} kN	D mm	L mm	H mm	A mm	M_A mm	Z Pcs.	S	DIN	Class	pw N/mm²	Weight Kg
W130	125	32580	521	267	150	155	206	326	10	M20 x 110	931	A4-K80	123	45
W130	130	35770	550	267	150	155	206	326	10	M20 x 110	931	A4-K80	125	45
W130	134	39250	586	267	150	155	206	326	10	M20 x 110	931	A4-K80	129	45
W140	135	39350	583	280	160	165	218	326	11	M20 x 110	931	A4-K80	121	55
W140	140	43410	620	280	160	165	218	326	11	M20 x 110	931	A4-K80	124	55
W140	144	46820	650	280	160	165	218	326	11	M20 x 110	931	A4-K80	127	55
W150	145	47120	650	302	170	175	230	326	12	M20 x 120	931	A4-K80	118	70
W150	150	51560	687	302	170	175	230	326	12	M20 x 120	931	A4-K80	121	70

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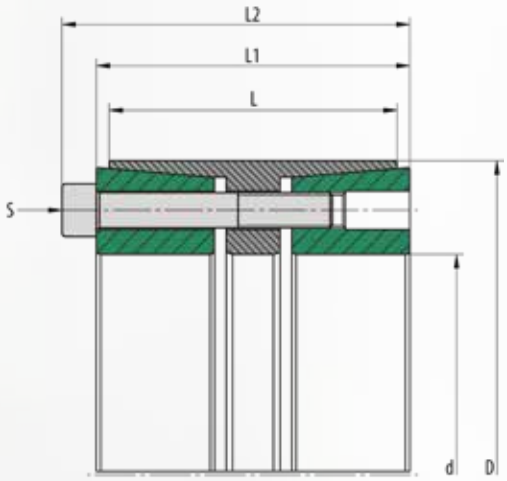
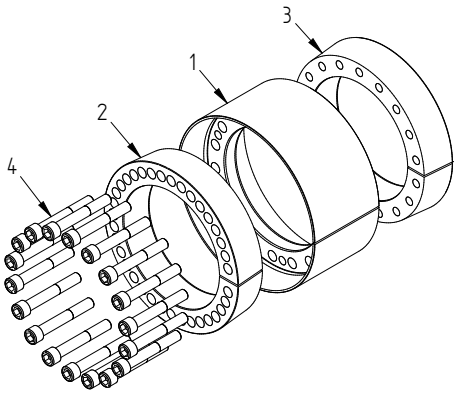
3012 S2 (stainless)



Used symbols

d	[mm]	Shaft diameter		
D	[mm]	Hub inside diameter		
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$	
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$	
p_W	[N/mm²]	Average pressure on the shaft		
p_N	[N/mm²]	Average pressure on the hub		
L	[mm]	Lenght of the sleeve		
L_1	[mm]	Width of the locking device without screws		
L_2	[mm]	Width of the locking device with screws		
Z		Number of clamping screws		
S		Size of the clamping screws		
M_A	[Nm]	Tightening torque of the clamping screws		



Pos.	Benennung
1	Sleeve
2	Pressure ring 1
3	Pressure ring 2
4	Screw

Recommended tolerances & surfaces

Shaft	h8 / Rz10
Hub	H8 / Rz10

Bending loads

Bending moment (share)	M_B max = 0,4 * M_t
Bending angle	max. 5´

More properties

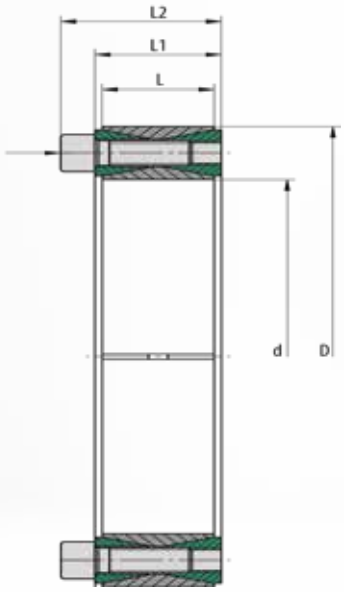
- low axial displacement during assembly
- very good self-centering
- high self-locking

Ordering information: TAS 3012/d/D S2 (z.B: TAS 3012/150/200 ... further sizes on request)

3012 S2 (stainless)

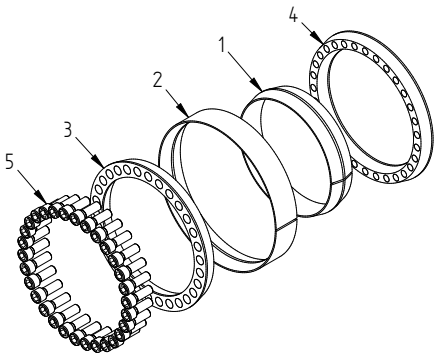
d mm		D mm	M_{max} Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Class	Weight Kg
25	x	**50**	415	33	95	39	5	M6 x 045	10,3	45	53	59	A4-K80	0,5
30	x	**55**	598	40	95	43	6	M6 x 045	10,3	45	55	61	A4-K80	0,6
35	x	**60**	814	46	95	46	7	M6 x 045	10,3	45	55	61	A4-K80	0,7
38	x	**65**	1009	53	100	48	8	M6 x 045	10,3	45	55	61	A4-K80	0,8
40	x	**65**	1063	53	95	48	8	M6 x 045	10,3	45	55	61	A4-K80	0,7
45	x	**75**	1926	86	148	69	7	M8 x 050	25	44	54	62	A4-K80	1,0
50	x	**80**	2446	98	118	58	8	M8 x 050	25	56	64	72	A4-K80	1,3
55	x	**85**	3026	110	121	61	9	M8 x 050	25	56	64	72	A4-K80	1,5
60	x	**90**	3668	122	123	64	10	M8 x 050	25	56	64	72	A4-K80	1,6
65	x	**95**	3974	122	113	61	10	M8 x 050	25	56	64	72	A4-K80	1,7
70	x	**110**	6813	195	132	67	10	M10 x 060	49,5	70	78	88	A4-K80	3,1
80	x	**120**	8565	214	127	68	11	M10 x 060	49,5	70	78	88	A4-K80	3,5
90	x	**130**	10512	234	123	68	12	M10 x 060	49,5	70	78	88	A4-K80	3,8
100	x	**145**	15607	312	118	63	11	M12 x 080	86	90	100	112	A4-K80	6,1
110	x	**155**	18729	341	117	65	12	M12 x 080	86	90	100	112	A4-K80	6,6
120	x	**165**	23836	397	125	71	14	M12 x 080	86	90	100	112	A4-K80	7,1
130	x	**180**	30378	467	114	66	12	M14 x 090	137	104	116	130	A4-K80	9,9
140	x	**190**	38167	545	123	73	14	M14 x 090	137	104	116	130	A4-K80	10,6
150	x	**200**	43814	584	123	75	15	M14 x 090	137	104	116	130	A4-K80	11,2
160	x	**210**	49851	623	123	76	16	M14 x 090	137	104	118	132	A4-K80	11,9
170	x	**225**	63589	748	106	66	14	M16 x 110	212	134	146	162	A4-K80	17,9
180	x	**235**	72139	802	107	68	15	M16 x 110	212	134	146	162	A4-K80	18,9
190	x	**250**	81223	855	109	68	16	M16 x 110	212	134	146	162	A4-K80	21,8
200	x	**260**	85498	855	103	65	16	M16 x 110	212	134	146	162	A4-K80	22,8
220	x	**285**	105804	962	105	67	18	M16 x 110	212	134	146	162	A4-K80	27,1
240	x	**305**	128248	1069	107	69	20	M16 x 110	212	134	146	162	A4-K80	29,3

3020 S2 (stainless)



Used symbols

d	[mm]	Shaft diameter	
D	[mm]	Hub inside diameter	
M_t	[Nm]	Max. transmittable torque	$F_{ax} = 0$
F_{ax}	[kN]	Max. transmittable axial force	$M_t = 0$
p_W	[N/mm²]	Average pressure on the shaft	
p_N	[N/mm²]	Average pressure on the hub	
L	[mm]	Lenght of the sleeve inside and outside	
L_1	[mm]	Width of the locking device without screws	
L_2	[mm]	Width of the locking device with screws	
Z		Number of clamping screws	
S		Size of the clamping screws	
M_A	[Nm]	Tightening torque of the clamping screws	



Pos.	Designation
1	Sleeve
2	Outter ring
3	Pressure ring 1
4	Pressure ring 2
5	Screw

Recommended tolerances & surfaces

Shaft	from h11 to k11 / Rz10
Hub	from H11 to N11 / Rz10

Bending loads

Bending moment (share)	depending on hub
Bending angle	max. 2`

More properties

- no axial displacement during assembly
- no self-centering
- no self-locking

Ordering information: TAS 3020/d/D S2 (z.B: TAS 3020/150/200 ... further sizes on request)

3020 S2 (stainless)

d mm		D mm	M_{max} Nm	F_{ax} kN	p_W N/mm²	p_N N/mm²	Z Pcs.	S	M_A Nm	L mm	L_1 mm	L_2 mm	Class	Weight kg
17	**x**	**47**	168	20	181	66	8	M6 x 018	10,3	17	20	27,5	A4-K80	0,23
18	**x**	**47**	178	20	171	66	8	M6 x 018	10,3	17	20	27,5	A4-K80	0,23
19	**x**	**47**	188	20	162	66	8	M6 x 018	10,3	17	20	27,5	A4-K80	0,23
20	**x**	**47**	198	20	154	66	8	M6 x 018	10,3	17	20	27,5	A4-K80	0,23
22	**x**	**47**	217	20	140	66	8	M6 x 018	10,3	17	20	27,5	A4-K80	0,23
24	**x**	**50**	237	20	129	62	9	M6 x 018	10,3	17	20	27,5	A4-K80	0,26
25	**x**	**50**	247	20	123	62	9	M6 x 018	10,3	17	20	27,5	A4-K80	0,25
28	**x**	**55**	415	30	165	84	10	M6 x 018	10,3	17	20	27,5	A4-K80	0,30
30	**x**	**55**	445	30	154	84	10	M6 x 018	10,3	17	20	27,5	A4-K80	0,29
32	**x**	**60**	474	30	145	77	12	M6 x 018	10,3	17	20	27,5	A4-K80	0,32
35	**x**	**60**	519	30	132	77	12	M6 x 018	10,3	17	20	27,5	A4-K80	0,32
38	**x**	**65**	704	37	152	89	14	M6 x 018	10,3	17	20	27,5	A4-K80	0,34
40	**x**	**65**	741	37	145	89	14	M6 x 018	10,3	17	20	27,5	A4-K80	0,34
42	**x**	**75**	1146	55	172	97	12	M8 x 022	25	20	24	33,5	A4-K80	0,57
45	**x**	**75**	1228	55	161	97	12	M8 x 022	25	20	24	33,5	A4-K80	0,57
48	**x**	**80**	1310	55	151	91	12	M8 x 022	25	20	24	33,5	A4-K80	0,60
50	**x**	**80**	1365	55	145	91	12	M8 x 022	25	20	24	33,5	A4-K80	0,60
55	**x**	**85**	1877	68	165	106	14	M8 x 022	25	20	24	33,5	A4-K80	0,63
60	**x**	**90**	2047	68	151	101	14	M8 x 022	25	20	24	33,5	A4-K80	0,69
65	**x**	**95**	2218	68	139	95	16	M8 x 022	25	20	24	33,5	A4-K80	0,73
70	**x**	**110**	3802	109	172	109	14	M10 x 025	49,5	24	28	39,5	A4-K80	1,26
75	**x**	**115**	4074	109	160	104	14	M10 x 025	49,5	24	28	39,5	A4-K80	1,33
80	**x**	**120**	4345	109	150	100	14	M10 x 025	49,5	24	28	39,5	A4-K80	1,40
85	**x**	**125**	4617	109	141	96	16	M10 x 025	49,5	24	28	39,5	A4-K80	1,49
90	**x**	**130**	4888	109	133	92	16	M10 x 025	49,5	24	28	39,5	A4-K80	1,53
95	**x**	**135**	6192	130	152	107	18	M10 x 025	49,5	24	28	39,5	A4-K80	1,62
100	**x**	**145**	7918	158	162	111	14	M12 x 030	86	26	33	47	A4-K80	2,01
110	**x**	**155**	8709	158	147	104	14	M12 x 030	86	26	33	47	A4-K80	2,15
120	**x**	**165**	10135	169	144	104	16	M12 x 030	86	26	33	47	A4-K80	2,35
130	**x**	**180**	13724	211	127	92	20	M12 x 035	86	34	38	52	A4-K80	3,51
140	**x**	**190**	16258	232	129	95	22	M12 x 035	86	34	38	52	A4-K80	3,85
150	**x**	**200**	19002	253	132	99	24	M12 x 035	86	34	38	52	A4-K80	4,07
160	**x**	**210**	21958	274	134	102	26	M12 x 035	86	34	38	52	A4-K80	4,03
170	**x**	**225**	27094	319	131	99	22	M14 x 040	137	38	44	60	A4-K80	5,78
180	**x**	**235**	31296	348	135	103	24	M14 x 040	137	38	44	60	A4-K80	6,05
190	**x**	**250**	38541	406	123	94	28	M14 x 045	137	46	52	68	A4-K80	8,25
200	**x**	**260**	43467	435	125	96	30	M14 x 045	137	46	52	68	A4-K80	8,65
220	**x**	**285**	56856	517	125	96	26	M16 x 050	212	50	56	74	A4-K80	11,22
240	**x**	**305**	71567	596	132	104	30	M16 x 050	212	50	56	74	A4-K80	12,20

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- **Very fast clamping with optional TAS hydraulic tool**
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- **Simplyfied handling**
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Overview further products

Typ	Characteristics	S1 1.4571	S2 1.4122	S3 1.4462	
3003	Corrosion resistance	medium	high	very high	Internal Locking Devices
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
3006	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
3012	Corrosion resistance	/	high	very high	
	Material of screws	/	A4	A4	
	Torque	/	high	medium	
3015	Corrosion resistance	/	high	very high	
	Material of screws	/	A4	A4	
	Torque	/	high	medium	
3020	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
3173	Corrosion resistance	medium	high	very high	Shrink Discs
	Material of screws	A4	A4	A4	
	Torque	low	hoch	medium	
3073	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
3071	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
3091	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
W	Corrosion resistance	medium	high	very high	Shaft Coupling
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
WLA	Corrosion resistance	medium	high	sehr gut	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	
WK	Corrosion resistance	medium	high	very high	
	Material of screws	A4	A4	A4	
	Torque	low	high	medium	

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