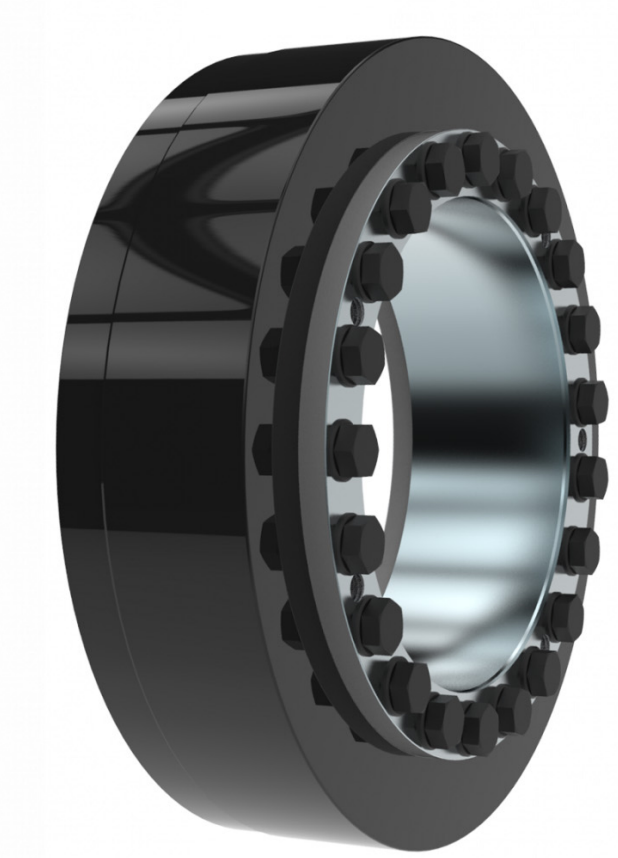
LÜTGERT

ANTRIEBSELEMENTE

2-part shrink discs (displ.-controlled)

TAS SCHÄFER



If performance is required

www.luetgert-antriebe.de

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
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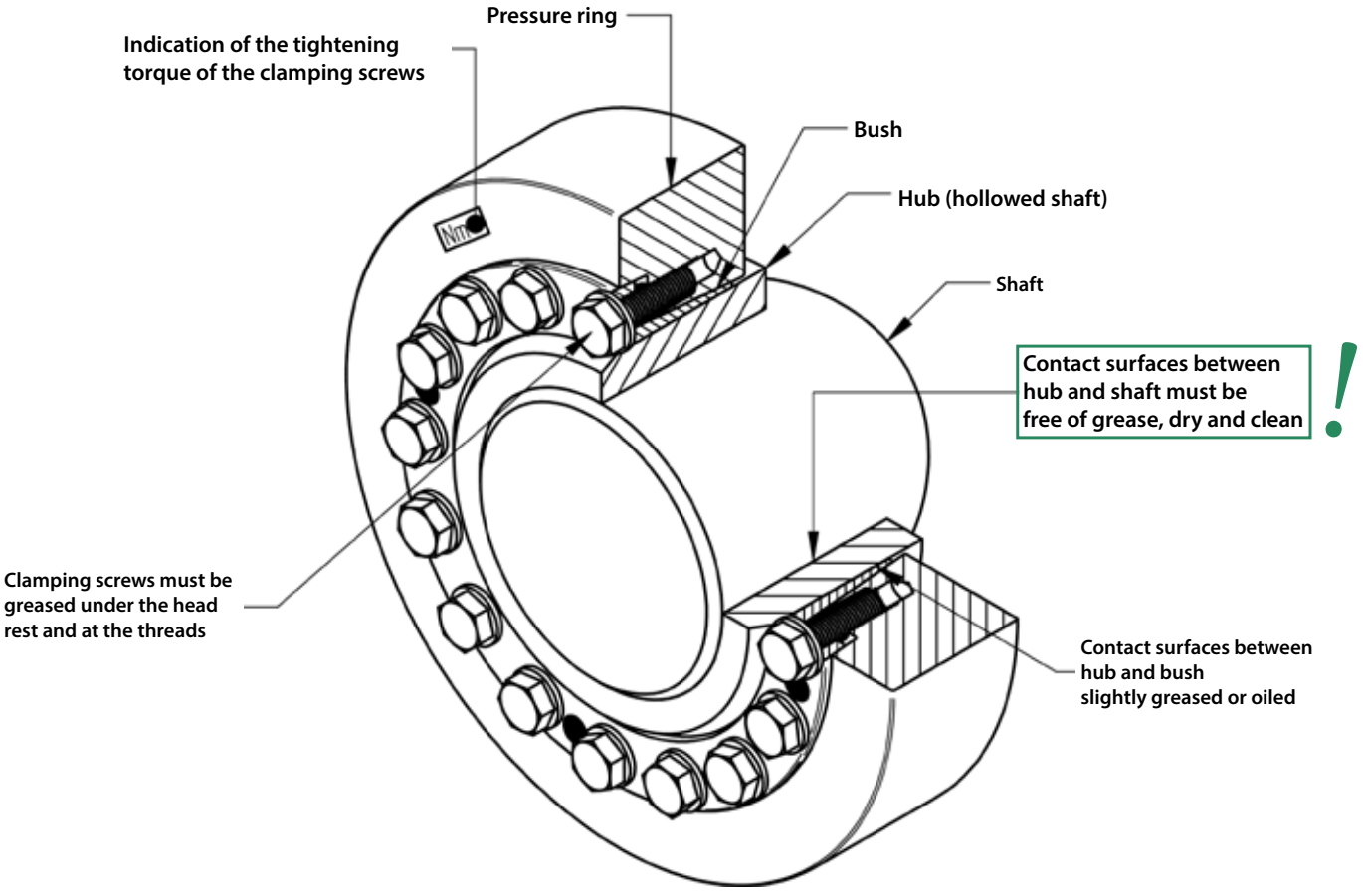


Basics - Design

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 - 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 $M_B \leq 0{,}3\ M_{max}$
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_{max} 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_{max} .

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

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

$$M_B \leq 0{,}2\ M_{max}$$

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)

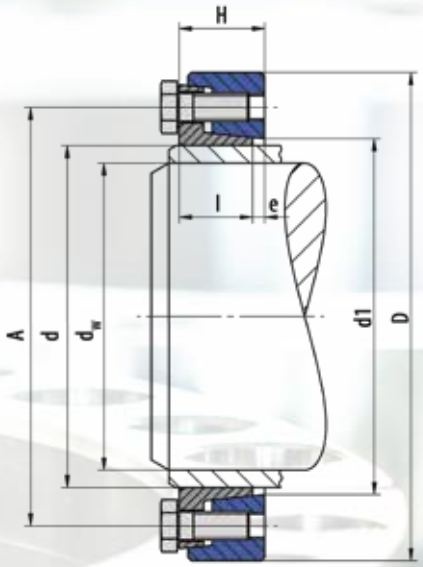
A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure pW , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore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

Shrink disc 2-part

To provide the shrink discs with optimal protection against environmental influences, they can be treated using the processes of galvanizing, nickel plating or painting with a corresponding corrosion protection class. We realize color requests according to the RAL color spectrum and products with lubricants in accordance with NSF H1.

shrink disc	*Design*	*Installation length*	*Shaft diameter [mm]*	*Transmittable torque [kNm]*	*Torque capacity*
3173	Displacement-controlled	Very small	20 -50	0,15 -18,5	Very low torques
3351	Displacement-controlled	Small	100 - 730	12,0 - 4.033	Low torques
3171	Torque-controlled	Medium	11 -550	0,03 -2.830	Medium torques
3371	Displacement-controlled	Medium	9 -1050	0,02 -16.493	Medium torques
3181	Torque-controlled	Medium	20 -550	0,027 -3.356	High torques
3381	Displacement-controlled	Medium	38 -920	1,5 -15.400	High torques
3191	Torque-controlled	Large	80 -460	13,40 -2.276	Very high torques
3391	Displacement-controlled	Large	100 -920	26,0 -16.300	Very high torques
3193	Torque-controlled	Large	80 -460	15,6 -2.653	Maximum torques
3393	Displacement-controlled	Large	100 -920	30,0 -19.200	Maximum torques

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]	Shoulder diameter
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/mm2]	Average pressure to the hub
I	[kgm2]	Moment of inertia

Design of the shrink disc

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

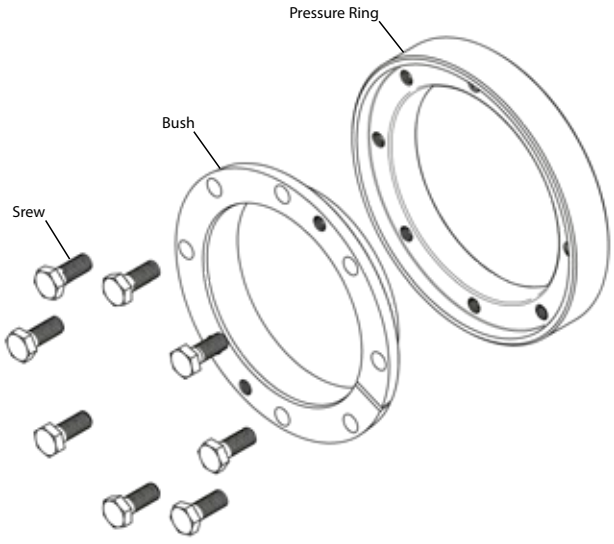
min. yield strength Rp0,2	N/mm²
Solid shaft	290
Hub	350

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)

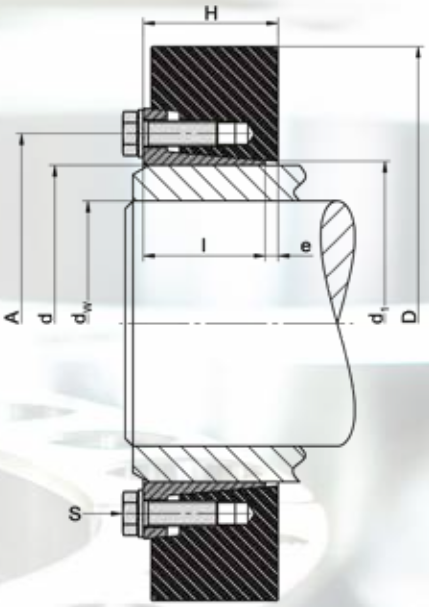
3173 Mini-Range

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

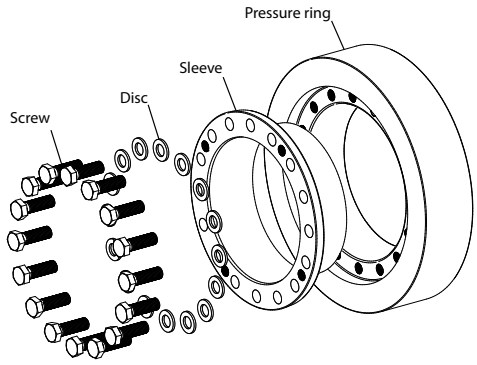
3351 Standard-series



used symbols

d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximum 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]	Shoulder diameter
M_A		Required tightening torque of the clamping screws
Z	[bar]	Number of clamping screws
S		Size of clamping screws
n_{max}	[min^{-1}]	Permissible rotational speed

Ausführung der Schrumpfscheiben	
d ≥ 200	Pressure rings painted with washers sleeve taper unslotted Dimensions H & e in the untensioned state



Minimum yield strength $R_{p0,2}$	N/mm^2
solid shaft	290
hub	350

3351 Standard-Reihe

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/S Pieces	DIN	Class	n_{max} min-¹	Weight kg
125	100	12.000	200	35	6,5	42	152	128	100	8 x M12	933	10.9	2700	5,5
	110	15.500												
140	110	16.000	215	38	6,5	42	164	143	100	9 x M12	933	10.9	2665	6,4
	120	20.000												
	130	25.000												
155	130	26.000	245	38	6,5	42	184	164	100	15 x M12	933	10.9	2500	8,7
	135	28.000												
	140	31.000												
165	135	29.000	263	43	6,2	47	200	174	160	12 x M14	933	10.9	2180	11,4
	140	32.000												
	145	35.000												
175	145	36.000	275	43	7,2	48	208	184	160	12 x M14	933	10.9	2100	12,2
	150	39.000												
	155	42.000												
185	155	50.000	290	51	8,2	57	220	195	160	16 x M14	933	10.9	1980	16
	160	54.000												
	165	58.000												
195	165	68.000	320	51	8,2	57	230	204	160	15 x M14	933	10.9	1790	20,6
	170	73.000												
	180	83.000												
220	180	80.000	340	55	10	66	254	227	240	16 x M16	933	10.9	1685	23,6
	190	91.000												
	200	103.000												
240	200	103.000	370	55	11	67	274	247	240	16 x M16	933	10.9	1550	27,6
	210	115.000												
	220	128.000												
260	220	132.000	405	55	11	67	294	266	240	18 x M16	933	10.9	1415	33,5
	230	146.000												
	240	161.000												
280	230	160.000	430	65	12	78	320	288	470	15 x M20	933	10.9	1330	44,1
	240	177.000												
	250	194.000												
300	250	191.000	460	65	13	79	340	308	470	16 x M20	933	10.9	1250	50,2
	260	209.000												
	270	228.000												
320	270	243.000	485	77	13	91	364	327	470	20 x M20	933	10.9	1180	64,5
	280	265.000												
	290	288.000												

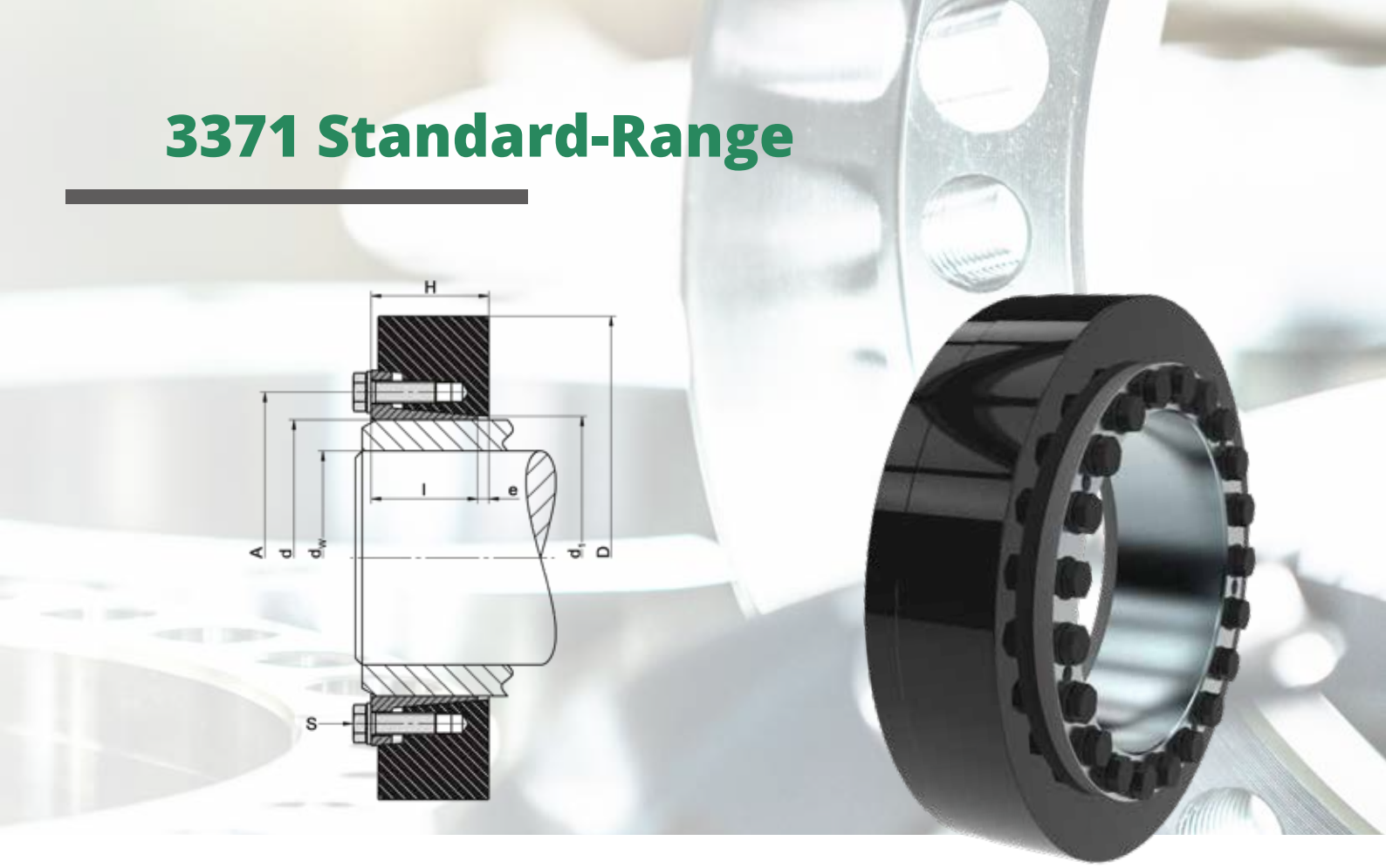
3351 Standard-Reihe

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/S Pieces	DIN	Class	n_{max} min^{-1}	Weight kg
340	280	274.000	520	77	13	91	384	347	470	20 x M20	933	10.9	1100	75
	290	297.000												
	300	322.000												
360	300	356.000	570	89	13	107	410	368	470	20 x M20	933	10.9	1000	113
	310	384.000												
	330	443.000												
390	330	438.000	590	89	14	108	440	398	470	24 x M20	933	10.9	980	114
	340	469.000												
	350	501.000												
420	350	624.000	630	120	21	141	470	427	820	18 x M24	933	10.9	890	166
	360	665.000												
	370	709.000												
440	370	778.000	660	132	21	155	494	448	820	20 x M24	933	10.9	850	203
	380	826.000												
	390	877.000												
460	390	852.000	690	132	21	155	516	468	820	20 x M24	933	10.9	810	222
	400	903.000												
	410	955.000												
480	410	1.086.000	720	152	23	175	540	487	820	24 x M24	933	10.9	800	274
	420	1.147.000												
	430	1.210.000												
500	420	1.137.000	745	152	24	178	560	508	820	24 x M24	933	10.9	770	293
	430	1.200.000												
	450	1.331.000												
530	450	1.376.000	790	166	20	188	594	540	1210	24 x M27	933	10.9	720	359
	460	1.446.000												
	480	1.592.000												
560	480	1.578.000	830	166	22	190	626	570	1210	28 x M27	933	10.9	680	393
	490	1.653.000												
	510	1.809.000												
590	510	1.873.000	880	172	26	198	658	599	1210	24 x M27	933	10.9	640	452
	520	1.957.000												
	540	2.131.000												
620	540	2.097.000	930	172	28	201	690	629	1210	24 x M27	933	10.9	620	516
	550	2.186.000												
	570	2.368.000												
660	570	2.426.000	990	182	29	212	734	670	1640	24 x M30	933	10.9	600	619
	580	2.522.000												
	610	2.823.000												

3351 Standard-Reihe

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/S Pieces	DIN	Class	n_{max} min^{-1}	Weight kg
700	610	2.772.000	1040	182	28	212	774	710	1640	24 x M30	933	10.9	560	694
	620	2.874.000												
	640	3.084.000												
750	640	3.104.000	1100	192	30	223	826	760	1640	28 x M30	933	10.9	540	777
	650	3.214.000												
	680	3.555.000												
800	680	3.443.000	1150	192	32	225	876	809	1640	28 x M30	933	10.9	500	819
	700	3.673.000												
	730	4.033.000												

3371 Standard-Range



Used symbols

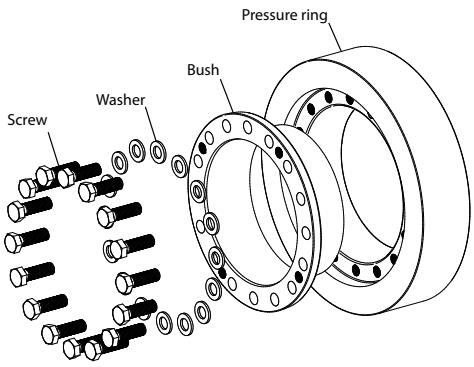
d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Shoulder diameter
M_A	[Nm]	Tightening torque of the clamping 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 < 120	Discs lightly oiled without washers
d ≥ 120	Disc painted with washers
d ≥ 200	Cone of bush not slit

Dimensions H & e in unlocked position

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



Ordering information: : TAS 3371-d (z.B.: TAS 3371-390 ... further sizes on request)

3371 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
12	9	20	35	10	4	14	24	13	12	3	M6x10	933	10.9	16370	274	0,000012	0,1
	10	40															
	-	-															
14	11	30	38	10	4	14	26	15	12	3	M6x10	933	10.9	15078	241	0,000017	0,1
	12	50															
	-	-															
16	13	70	41	13,5	4	17	28	17	12	3	M6x12	933	10.9	13975	232	0,000030	0,1
	14	90															
	-	-															
18	15	80	44	13,5	4	17	30	19	12	4	M6x12	933	10.9	13022	191	0,000040	0,1
	16	110															
	-	-															
20	17	150	47	13,5	4	17	32	21	12	4	M6x12	933	10.9	12191	233	0,000051	0,2
	18	180															
	-	-															
24	19	160	48	15	4	19	36	26	12	5	M6x14	933	10.9	11937	217	0,000060	0,2
	20	200															
	22	280															
30	24	270	60	16	4	21	44	32	12	6	M6x16	933	10.9	9549	189	0,000164	0,4
	25	320															
	26	360															
36	28	490	72	18	4	22	52	38	30	5	M8x16	933	10.9	7958	208	0,000360	0,5
	30	610															
	33	820															
44	35	690	80	20	5	26	61	47	30	6	M8x20	933	10.9	7162	185	0,000615	0,7
	35	770															
	36	840															
50	38	1.100	90	22	5	28	68	53	30	8	M8x20	933	10.9	6366	202	0,001070	0,9
	40	1.290															
	42	1.500															
55	42	1.230	100	23	5	28	72	58	30	8	M8x20	933	10.9	5730	187	0,001638	1,20
	45	1.530															
	48	1.860															
62	48	1.670	110	23	5	28	80	66	30	9	M8x20	933	10.9	5730	187	0,001638	1,20
	50	1.890															
	52	2.120															
68	50	1.870	115	23	5	28	86	72	30	9	M8x20	933	10.9	4982	192	0,002769	1,4
	55	2.450															
	60	3.120															
75	55	2.330	138	25	5	30	100	79	59	10	M10x025	933	10.9	4152	187	0,006467	2,5
	60	3.020															
	65	3.800															

3371 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
80	60	3.190	141	25	6	31	104	84	59	10	M10x025	933	10.9	4064	199	0,006922	2,5
	65	4.000															
	70	4.900															
90	65	5.400	155	30	6	36	114	94	59	10	M10x025	933	10.9	3697	230	0,011917	3,5
	70	6.500															
	75	7.800															
100	70	6.000	170	34	6	40	124	104	59	12	M10x025	933	10.9	3370	201	0,019335	4,7
	75	7.200															
	80	8.500															
110	80	10.000	185	39	7	46	137	114	100	12	M12x30	933	10.9	3097	209	0,030806	6,3
	85	11.700															
	90	13.600															
120	85	11.900	197	42	7	49	147	126	100	12	M12x30	933	10.9	2908	210	0,041964	7,4
	90	13.800															
	95	15.900															
125	90	14.400	215	42	7	49	152	129	100	12	M12x30	933	10.9	2665	220	0,061151	9,3
	95	16.500															
	100	18.700															
135	95	18.100	230	46	8	54	165	139	160	10	M14x040	933	10.9	2491	225	0,087099	11,5
	100	20.600															
	110	26.000															
140	100	19.600	230	46	8	54	172	146	160	12	M14x040	933	10.9	2491	217	0,085262	11,1
	105	22.100															
	115	27.600															
155	110	26.500	263	50	8	58	186	159	160	12	M14x040	933	10.9	2179	220	0,161225	15,9
	115	29.500															
	125	36.100															
165	120	37.300	290	56	10	66	198	169	250	12	M16x040	933	10.9	1976	226	0,271183	22,2
	125	41.200															
	135	49.600															
175	130	45.000	300	56	10	66	208	179	250	12	M16x040	933	10.9	1910	230	0,306754	23,3
	135	49.000															
	145	58.000															
185	140	64.000	320	71	11	82	222	191	250	16	M16x050	933	10.9	1790	221	0,503920	33,3
	145	70.000															
	155	82.000															
200	150	80.000	340	71	13	84	238	206	250	16	M16x050	933	10.9	1685	241	0,636412	36,9
	155	87.000															
	165	100.000															
220	160	103.000	370	93	14	107	270	230	490	15	M20x060	933	10.9	1549	212	1,31	51,5
	170	119.000															
	180	136.000															

3371 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	$Klasse$	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	$Weight$ kg
240	170	122.000	405	95	14	109	288	248	490	16	M20x060	933	10.9	1415	217	1,70	63,9
	180	140.000															
	200	179.000															
260	190	163.000	430	105	14	119	306	268	490	15	M20x060	933	10.9	1332	208	2,36	77,5
	200	184.000															
	220	231.000															
280	210	215.000	460	114	15	129	328	288	490	16	M20x060	933	10.9	1246	204	3,34	94,7
	220	240.000															
	240	295.000															
300	220	270.000	485	123	17	140	354	308	820	16	M24x070	933	10.9	1181	215	4,40	112
	230	300.000															
	250	363.000															
320	240	301.000	520	125	16	141	380	328	820	18	M24x070	933	10.9	1102	197	5,93	133
	250	332.000															
	270	398.000															
340	250	390.000	570	134	17	151	402	349	820	18	M24x070	933	10.9	1005	223	9,35	177
	260	427.000															
	280	506.000															
350	270	493.000	580	140	18	158	414	365	820	20	M24x070	933	10.9	988	223	10,40	190
	280	535.000															
	290	580.000															
360	270	496.000	590	140	18	158	424	369	820	20	M24x070	933	10.9	971	226	11,06	194
	280	539.000															
	300	631.000															
380	290	585.000	640	146	18	164	444	388	1210	18	M27x070	933	10.9	895	219	16,23	244
	300	632.000															
	310	681.000															
390	290	640.000	645	146	19	165	454	398	1210	18	M27x080	933	10.9	888	240	16,56	243
	300	691.000															
	320	799.000															
420	320	742.000	670	167	19	186	490	428	1210	18	M27x080	933	10.9	855	201	21,51	286
	330	797.000															
	350	912.000															
440	340	945.000	710	174	23	197	506	448	1210	21	M27x080	933	10.9	807	215	28,49	339
	350	1.009.000															
	370	1.143.000															
460	360	1.104.000	745	174	24	198	534	470	1210	21	M27x090	933	10.9	769	223	34,62	375
	370	1.174.000															
	390	1.320.000															
480	380	1.300.000	770	192	25	217	552	488	1640	20	M30x090	933	10.9	744	219	43,28	437
	390	1.378.000															
	410	1.541.000															

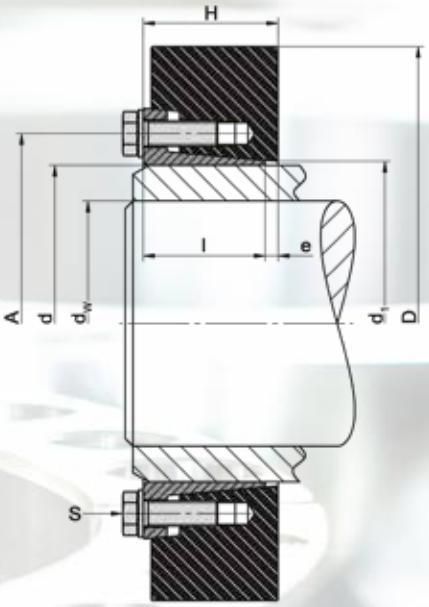
3371 Standard-Range

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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
500	400	1.496.000	800	192	26	218	572	508	1640	21	M30x090	933	10.9	716	219	50,34	470
	410	1.581.000															
	430	1.759.000															
530	430	1.930.000	845	213	30	243	606	541	1640	24	M30x100	933	10.9	678	220	69,62	576
	440	2.031.000															
	460	2.243.000															
560	450	2.097.000	900	213	30	243	632	568	1640	24	M30x100	933	10.9	637	218	90,11	660
	460	2.201.000															
	480	2.420.000															
590	470	2.593.000	950	230	31	261	664	598	1640	28	M30x100	933	10.9	603	228	120,87	821
	480	2.715.000															
	500	2.970.000															
620	500	2.904.000	960	254	33	287	706	630	1640	28	M30x100	933	10.9	597	204	134,96	872
	520	3.169.000															
	540	3.447.000															
660	530	3.329.000	1020	260	35	295	748	670	2200	24	M33x110	933	10.9	562	204	175,74	1004
	550	3.614.000															
	570	3.911.000															
700	560	3.804.000	1080	260	37	297	782	710	2200	28	M33x120	933	10.9	531	208	220,57	1141
	580	4.109.000															
	600	4.427.000															
750	600	4.801.000	1150	278	41	319	848	760	2200	32	M33x120	933	10.9	498	213	301,41	1346
	620	5.157.000															
	650	5.716.000															
800	640	5.620.000	1230	296	42	338	900	810	2200	32	M33x130	933	10.9	466	207	420,80	1646
	660	6.012.000															
	700	6.839.000															
850	650	5.942.000	1300	315	44	359	950	860	2850	30	M36x130	933	10.9	441	201	555,97	1942
	700	6.994.000															
	730	7.669.000															
900	700	6.967.000	1350	332	47	379	1000	915	2850	32	M36x140	933	10.9	424	192	668,94	2142
	730	7.640.000															
	760	8.345.000															
950	750	8.295.000	1400	360	49	409	1050	965	2850	36	M36x140	933	10.9	409	183	823,40	2425
	780	9.041.000															
	820	10.088.000															
1000	800	9.568.000	1420	380	60	440	1100	1020	2850	36	M36x160	933	10.9	402	175	880,02	2740
	830	10.380.000															
	860	11.228.000															
1050	850	11.241.000	1520	400	58	458	1150	1070	2850	36	M36x160	933	10.9	377	173	1245,24	3078
	880	12.135.000															
	920	13.383.000															

3371 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
1100	900	13.045.000	1570	430	61	491	1200	1120	2850	40	M36x170	933	10.9	365	166	1496,97	3438
	930	14.023.000															
	960	15.038.000															
1200	940	12.902.000	1630	460	66	526	1300	1220	2850	40	M36x180	933	10.9	352	143	1730,72	3566
	1000	14.803.000															
	1050	16.493.000															

3381 Standard-Range (strengthened)



Used symbols

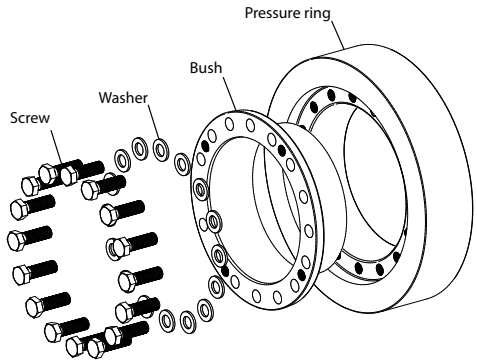
d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Shoulder diameter
M_A	[Nm]	Tightening torque of the clamping 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 < 120	Discs lightly oiled without washers
d ≥ 120	Disc painted with washers
d ≥ 200	Cone of bush not slit

Dimensions H & e in unlocked position

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



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

3381 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
50	38	1.500	90	22	5	27	68	53	35	8	M8x20	933	12.9	6366	265	0,001026	0,9
	40	1.700															
	42	2.000															
55	42	1.600	100	23	5	28	72	58	35	8	M8x20	933	12.9	5730	225	0,001638	1,2
	45	2.000															
	48	2.400															
62	48	2.200	110	23	5	28	80	66	35	9	M8x20	933	12.9	5209	225	0,002374	1,4
	50	2.500															
	52	2.700															
68	50	2.400	115	23	6	29	86	72	35	9	M8x20	933	12.9	4982	216	0,002769	1,4
	55	3.000															
	60	3.800															
75	55	3.700	138	25	6	31	100	79	70	10	M10x025	933	12.9	4152	264	0,006467	2,5
	60	4.700															
	65	5.800															
80	60	4.200	141	25	6	31	104	84	70	10	M10x025	933	12.9	4064	247	0,006922	2,5
	65	5.200															
	70	6.300															
90	65	5.900	155	30	6	36	114	94	70	10	M10x025	933	12.9	3697	247	0,011917	3,5
	70	7.200															
	75	8.500															
100	70	7.400	170	34	7	41	124	104	70	12	M10x025	933	12.9	3370	237	0,019335	4,7
	75	8.900															
	80	10.400															
110	80	12.600	185	39	7	46	137	114	120	12	M12x040	933	12.9	3097	253	0,030806	6,3
	85	14.600															
	90	16.900															
120	85	13.600	197	42	7	49	147	126	120	12	M12x040	933	12.9	2908	234	0,041964	7,8
	90	15.700															
	95	18.000															
125	90	16.400	215	42	7	49	152	129	120	12	M12x040	933	12.9	2665	245	0,061151	9,3
	95	18.800															
	100	21.300															
135	95	20.300	230	46	8	54	165	139	190	10	M14x040	933	12.9	2491	247	0,087099	11,5
	100	23.000															
	110	29.000															
140	100	23.000	230	46	9	55	172	146	190	12	M14x040	933	12.9	2491	249	0,085262	11,5
	105	25.900															
	115	32.200															
155	110	31.100	263	50	9	59	186	159	190	12	M14x040	933	12.9	2179	249	0,161225	16
	115	34.600															
	125	42.100															

3381 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
165	120	44.000	290	56	10	66	198	169	290	12	M16x040	933	12.9	1976	261	0,271183	23
	125	48.500															
	135	58.100															
175	130	54.000	300	56	11	67	208	179	290	12	M16x050	933	12.9	1910	271	0,306754	24
	135	59.000															
	145	70.000															
185	140	81.000	320	71	12	83	222	191	290	16	M16x050	933	12.9	1790	272	0,503920	34
	145	88.000															
	155	102.000															
200	150	96.000	340	71	14	85	238	206	290	16	M16x050	933	12.9	1685	283	0,636412	37
	155	103.000															
	165	119.000															
220	160	129.000	370	93	15	108	270	230	570	15	M20x060	933	12.9	1549	259	1,16	52
	170	149.000															
	180	170.000															
240	170	151.000	405	95	15	110	288	248	570	16	M20x060	933	12.9	1415	262	1,70	64
	180	172.000															
	200	220.000															
260	190	212.000	430	105	17	122	306	268	570	15	M20x060	933	12.9	1332	264	2,36	78
	200	239.000															
	220	298.000															
280	210	279.000	46	114	17	131	328	288	570	16	M20x060	933	12.9	1246	258	3,34	95
	220	311.000															
	240	379.000															
300	220	332.000	485	123	19	142	354	308	900	16	M24x070	933	12.9	1181	260	4,40	113
	230	367.000															
	250	444.000															
320	240	404.000	520	125	19	144	380	328	900	18	M24x070	933	12.9	1102	258	5,93	133
	250	444.000															
	270	530.000															
340	250	489.000	570	134	19	153	402	349	900	18	M24x070	933	12.9	1005	268	9,35	178
	260	534.000															
	280	632.000															
350	270	625.000	580	140	21	161	414	365	900	20	M24x070	933	12.9	988	276	10,40	185
	280	670.000															
	290	730.000															
360	270	625.000	590	140	21	161	424	369	900	20	M24x080	933	12.9	971	279	11,06	195
	280	678.000															
	300	791.000															
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															

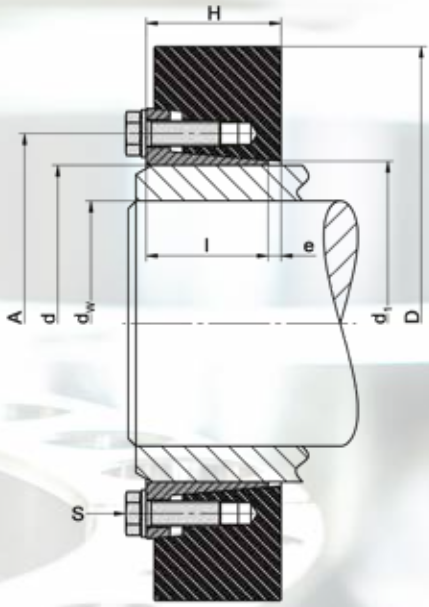
3381 Standard-Range (strengthened)

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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
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	M27x090	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	M27x100	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	M30x100	933	12.9	726	267	48,79	476
	390	1.760.000															
	410	1.965.000															
500	400	1.890.000	835	192	28	220	572	508	1800	21	M30x100	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	M30x100	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	99,85	710
	460	2.675.000															
	480	2.935.000															
590	470	2.970.000	960	230	33	263	664	598	1800	28	M30x110	933	12.9	597	259	126,94	830
	480	3.110.000															
	500	3.400.000															
620	500	3.405.000	970	254	35	289	706	630	1800	28	M30x110	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	M33x120	933	12.9	541	245	211,19	1120
	550	4.375.000															
	570	4.730.000															
700	560	4.605.000	1140	260	38	298	782	710	2400	28	M33x120	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	M33x130	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	490,80	1835
	660	7.270.000															
	700	8.250.000															
850	650	7.215.000	1340	315	47	362	950	860	3100	30	M36x140	933	12.9	428	242	643,65	2154
	700	8.475.000															
	730	9.275.000															

3381 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*	*Klasse*	n_{max} min^{-1}	p_N N/mm^2	*I* kgm^2	*Weight* kg
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	M36x150	933	12.9	395	220	980,86	2752
	780	10.950.000															
	820	12.200.000															
1000	800	11.300.000	1470	380	61	441	1100	1020	3100	36	M36x170	933	12.9	390	205	1053,28	2700
	830	12.300.000															
	860	13.200.000															
1050	850	13.000.000	1520	400	65	465	1150	1070	3100	40	M36x170	933	12.9	377	199	1245,24	3200
	880	14.000.000															
	920	15.400.000															

3391 Heavy-Range



Used symbols

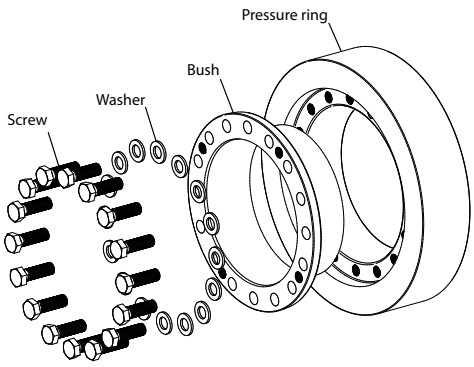
d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Shoulder diameter
M_A	[Nm]	Tightening torque of the clamping 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

	Disc painted with washers
d ≥ 200	Cone of bush not slit

Dimensions H & e in unlocked position

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



Ordering information: : TAS 3391-d (z.B.: TAS 3391-390 ... further sizes on request)

3391 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
140	100	26.000	230	60	10	70	174	144	250	8	M16x040	933	10.9	2491	221	0,110659	13,6
	105	30.000															
	115	37.000															
155	110	36.000	263	66	10	76	194	160	250	9	M16x040	933	10.9	2179	225	0,211805	19,8
	115	40.000															
	125	48.000															
165	120	50.000	290	72	10	82	200	169	250	12	M16x040	933	10.9	1976	234	0,347305	27,7
	125	55.000															
	135	66.000															
175	130	61.000	300	72	11	83	210	179	250	12	M16x050	933	10.9	1910	241	0,392860	29
	135	67.000															
	145	79.000															
185	140	89.000	320	92	12	104	232	190	490	12	M20x050	933	10.9	1790	235	0,650897	40,1
	145	96.000															
	155	113.000															
200	150	104.000	340	92	13	105	246	204	490	12	M20x050	933	10.9	1685	242	0,822032	44,5
	155	113.000															
	165	130.000															
220	160	127.000	370	117	13	130	266	224	490	15	M20x050	933	10.9	1549	209	1,45	65,3
	170	137.000															
	180	169.000															
240	170	157.000	405	122	13	135	286	244	490	16	M20x060	933	10.9	1415	218	2,18	81,6
	180	180.000															
	200	230.000															
260	190	230.000	430	136	17	153	306	265	490	18	M20x060	933	10.9	1332	225	3,05	101
	200	260.000															
	220	325.000															
280	210	306.000	460	148	18	166	334	285	840	16	M24x70	933	10.9	1246	222	4,32	126
	220	342.000															
	240	418.000															
300	220	360.000	485	152	19	171	354	305	840	16	M24x70	933	10.9	1181	209	5,43	140
	230	398.000															
	250	437.000															
320	240	430.000	520	160	20	180	374	325	840	18	M24x70	933	10.9	1102	218	7,58	171
	250	473.000															
	270	565.000															
340	250	551.000	560	176	22	198	404	345	1250	18	M27x080	933	10.9	1023	233	11,37	221
	260	603.000															
	280	714.000															
350	270	600.000	570	180	22	202	414	361	1250	18	M27x080	933	10.9	1005	212	12,32	236
	280	650.000															
	290	710.000															

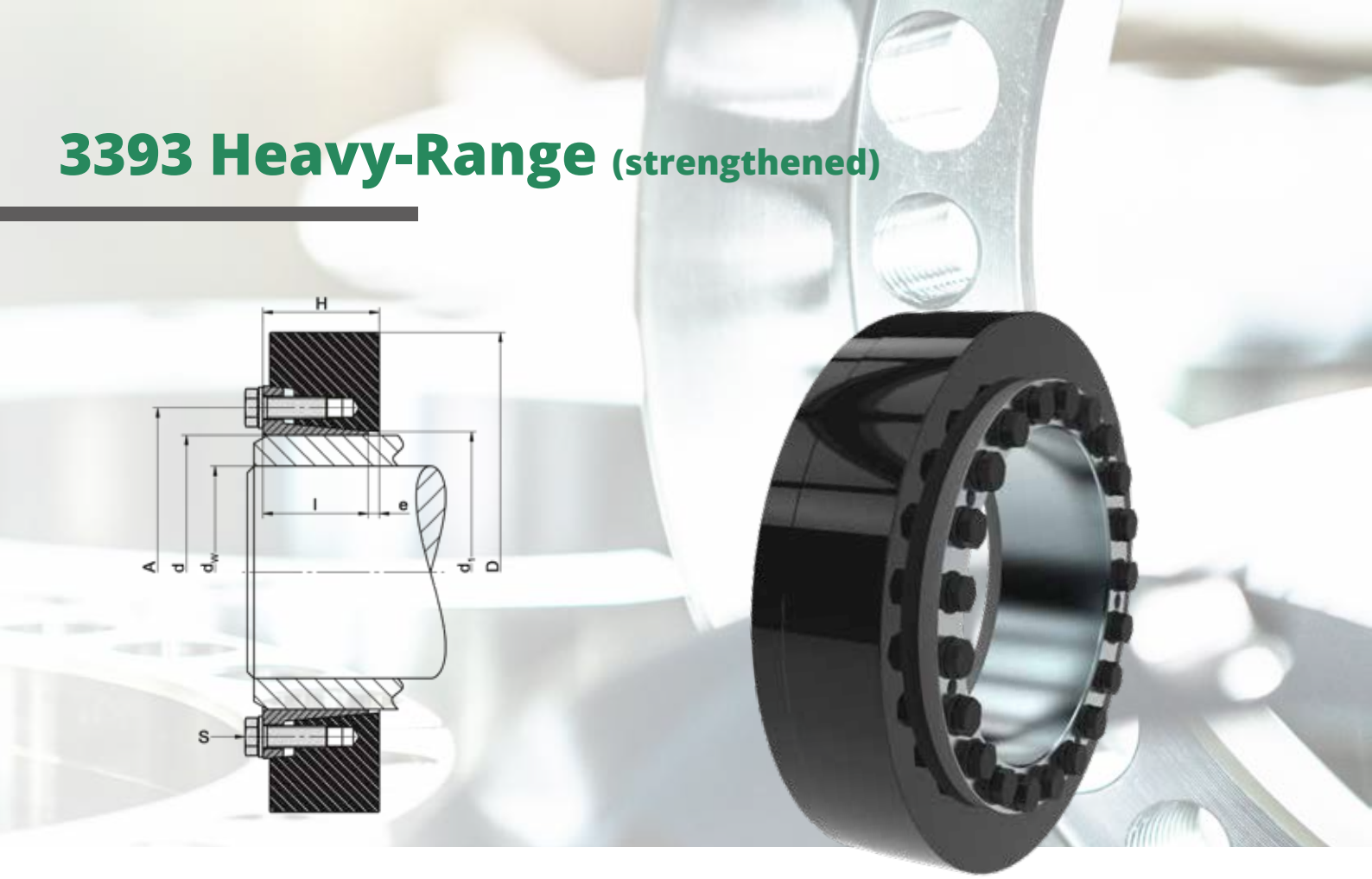
3391 Heavy-Range

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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
360	270	671.000	590	180	22	202	424	365	1250	18	M27x080	933	10.9	971	236	14,20	249
	280	729.000															
	300	852.000															
390	290	850.000	650	190	25	215	456	398	1250	20	M27x090	933	10.9	881,473531	244,253884	22,30	324
	300	917.000															
	320	1.061.000															
420	320	1.008.000	670	214	26	240	486	428	1250	21	M27x090	933	10.9	855,1608883	212,2902805	27,53	367
	330	1.082.000															
	350	1.237.000															
440	340	1.218.000	740	225	26	251	514	448	1640	21	M30x090	933	10.9	774,2672907	235,709111	44,56	508
	350	1.301.000															
	370	1.475.000															
460	360	1.402.000	750	226	27	253	534	468	1640	21	M30x100	933	10.9	763,9437268	217,1658389	46,33	485
	370	1.491.000															
	390	1.678.000															
480	380	1.712.000	760	246	29	275	552	488	1640	21	M30x100	933	10.9	753,8918357	217,3324297	52,07	537
	390	1.814.000															
	410	2.028.000															
500	400	1.993.000	800	246	30	276	572	508	1640	24	M30x100	933	10.9	716,1972439	226,8337117	64,42	604
	410	2.106.000															
	430	2.342.000															
530	430	2.549.000	860	276	32	312	616	538	2210	21	M33x110	933	10.9	666,2299943	223,395598	99,19	794
	440	2.683.000															
	460	2.962.000															
560	450	2.849.000	900	280	34	314	646	568	2210	24	M33x110	933	10.9	636,6197724	224,5460525	118,19	867
	460	2.990.000															
	480	3.285.000															
590	470	3.310.000	960	296	34	330	672	600	2210	24	M33x110	933	10.9	596,8310366	225,9241121	163,05	1071
	480	3.467.000															
	500	3.793.000															
620	500	4.069.000	1000	330	35	365	706	630	2210	27	M33x110	933	10.9	572,9577951	219,3400416	212,60	1279
	520	4.251.000															
	540	4.824.000															
660	530	4.746.000	1070	334	38	372	750	670	2850	27	M36x120	933	10.9	535,4745749	225,3140418	283,03	1475
	550	4.944.000															
	570	5.566.000															
700	560	5.316.000	1070	334	45	379	802	710	2850	27	M36x130	933	10.9	535,4745749	225,5805788	270,32	1387
	580	5.525.000															
	600	6.179.000															
750	600	6.326.000	1170	360	43	413	852	760	2850	30	M36x130	933	10.9	489,7075172	216,6424012	435,35	1810
	620	6.794.000															
	650	7.530.000															

3391 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
800	640	7.358.000	1280	360	43	403	900	810	2850	35	M36x130	933	10.9	447,6232774	221,6397391	618,75	2290
	660	7.871.000															
	700	8.952.000															
850	650	7.700.000	1360	380	44	424	950	860	2850	36	M36x130	933	10.9	421,2924964	214,6803652	832,12	2588
	700	9.000.000															
	730	10.000.000															
900	700	9.000.000	1400	400	47	447	1010	912	2850	38	M36x140	933	10.9	409,255568	204,717819	962,23	2779
	730	9.900.000															
	760	10.800.000															
950	750	11.300.000	1460	430	52	482	1050	970	2850	44	M36x150	933	10.9	392,436846	207,0315436	1210,53	3192
	780	12.300.000															
	820	13.700.000															
1000	800	13.000.000	1500	460	57	487	1050	1020	2850	44	M36x160	933	10.9	382	195	1318,72	3246
	830	14.100.000															
	860	15.200.000															
1050	850	13.800.000	1530	480	58	538	1160	1070	2850	44	M36x160	933	10.9	374	176	1544,43	3588
	880	14.900.000															
	920	16.300.000															

3393 Heavy-Range (strengthened)



Used symbols

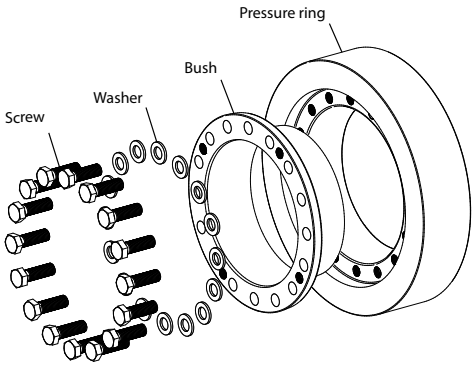
d	[mm]	Nominal diameter of the shrink disc
d_W	[mm]	Shaft diameter
M_{max}	[mm]	Maximal transmittable torque
D	[mm]	Outer diameter
l	[mm]	Length of the bush
e	[mm]	Excess length
H	[mm]	Width of the shrink disc
A	[mm]	Pitch circle diameter
d_1	[mm]	Shoulder diameter
M_A	[Nm]	Tightening torque of the clamping 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

	Disc painted with washers
d ≥ 200	Cone of bush not slit

Dimensions H & e in unlocked position

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



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

3393 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
140	100	30.000	240	60	10	70	174	144	290	8	M16x040	933	12.9	2387	249	0,134464	15,5
	105	34.000															
	115	43.000															
155	110	45.000	263	66	11	77	194	160	290	9	M16x045	933	12.9	2179	273	0,211805	20
	115	50.000															
	125	61.000															
165	120	64.000	290	72	11	83	200	169	290	12	M16x045	933	12.9	1976	291	0,347305	28
	125	70.000															
	135	84.000															
175	130	74.000	300	72	12	84	210	179	290	12	M16x045	933	12.9	1910	287	0,392860	29
	135	80.000															
	145	95.000															
185	140	106.000	320	92	13	105	232	189	570	12	M20x050	933	12.9	1790	275	0,650897	40,5
	145	115.000															
	155	135.000															
200	150	127.000	340	92	14	106	246	204	570	12	M20x060	933	12.9	1685	289	0,822032	44,5
	155	137.000															
	165	158.000															
220	160	163.000	370	117	14	131	266	224	570	15	M20x060	933	12.9	1549	260	1,45	65,5
	170	176.000															
	180	215.000															
240	170	209.000	405	122	15	137	286	244	570	16	M20x060	933	12.9	1415	280	2,18	82
	180	238.000															
	200	303.000															
260	190	288.000	430	136	19	155	306	265	570	18	M20x070	933	12.9	1332	276	3,05	100
	200	325.000															
	220	404.000															
280	210	361.000	460	148	20	168	334	285	900	16	M24x70	933	12.9	1246	257	4,32	126
	220	402.000															
	240	491.000															
300	220	465.000	485	152	22	174	354	305	900	16	M24x80	933	12.9	1181	265	5,43	141
	230	513.000															
	250	563.000															
320	240	510.000	520	160	22	182	374	325	900	18	M24x80	933	12.9	1102	255	7,58	171
	250	560.000															
	270	669.000															
340	250	664.000	570	176	24	200	404	345	1310	18	M27x080	933	12.9	1005	276	12,33	234
	260	726.000															
	280	859.000															
350	270	700.000	580	180	23	203	414	361	1310	18	M27x080	933	12.9	988	244	13,35	243
	280	760.000															
	290	820.000															

3393 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	Klasse	n_{max} min^{-1}	p_N N/mm^2	I kgm^2	Weight kg
360	270	763.000	590	180	24	204	424	365	1310	18	M27x090	933	12.9	971	266	14,20	249
	280	829.000															
	300	969.000															
390	290	975.000	650	190	27	217	456	398	1310	20	M27x090	933	12.9	882	278	22,30	325
	300	1.050.000															
	320	1.215.000															
420	320	1.300.000	690	214	29	243	486	428	1310	21	M27x100	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	M30x100	933	12.9	764	274	47,37	530
	350	1.695.000															
	370	1.915.000															
460	360	1.750.000	760	226	30	256	534	468	1800	21	M30x100	933	12.9	754	268	49,27	520
	370	1.860.000															
	390	2.090.000															
480	380	2.110.000	800	246	30	276	552	488	1800	21	M30x100	933	12.9	717	265	66,17	640
	390	2.230.000															
	410	2.490.000															
500	400	2.555.000	850	246	32	278	572	508	1800	24	M30x100	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	M33x110	933	12.9	644	266	116,23	900
	440	3.275.000															
	460	3.610.000															
560	450	3.455.000	940	280	35	315	646	568	2600	24	M33x110	933	12.9	610	269	144,60	1000
	460	3.625.000															
	480	3.980.000															
590	470	4.030.000	980	296	37	333	666	600	2600	24	M33x120	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	M33x120	933	12.9	562	268	233,17	1370
	520	5.265.000															
	540	5.965.000															
660	530	5.835.000	1090	334	42	376	750	670	3300	27	M36x130	933	12.9	526	275	308,48	1570
	550	6.080.000															
	570	6.835.000															
700	560	6.490.000	1160	334	43	377	802	710	3300	27	M36x130	933	12.9	494	273	396,52	1810
	580	6.740.000															
	600	7.530.000															
750	600	7.675.000	1220	370	44	414	852	760	3300	30	M36x130	933	12.9	470	254	530,79	2140
	620	8.235.000															
	650	9.120.000															

3393 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	Klasse	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	M36x140	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	M36x140	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	M36x140	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	M36x150	933	12.9	377	222	1468,34	3805
	780	13.220.000															
	820	14.730.000															
1000	800	14.300.000	1550	460	56	486	1100	1020	3300	44	M36x160	933	12.9	370	214	1549,03	3820
	830	15.500.000															
	860	16.700.000															
1050	850	16.200.000	1580	480	60	540	1160	1070	3300	44	M36x160	933	12.9	363	205	1816,86	4050
	880	17.400.000															
	920	19.200.000															

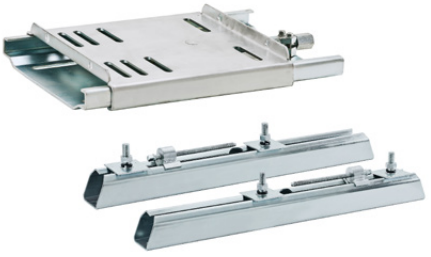
PRODUCT OVERVIEW
EXCERPT

Drive pulleys

V-belt pulleys | Flat belt pulleys | Flywheels | Grid pulleys | Timing belt pulleys | Rubberized pulleys
Split pulleys | Aluminium pulleys

Supplies for drive belts

TaperLock clamping bushes | Motor mounting systems | V-belts / Drive belts | V-belt metrology | Rubber suspension units
Oscillating mountings | Tensioner devices | Foundation blocks | Shafts and rolls



More information required?

www.luetgert-antriebe.de

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