



*your reliable partner*

**EAS<sup>®</sup>-HT**

**Reliable High Torque  
safety clutches  
for heavy load applications**





## Always in use

**EAS®-HT safety clutches for heavy load applications prolong the availability of your production systems.**

**They increase your profit, prevent damage caused by overload and save costs.**

### **EAS®-HT safety clutches**

**the reliable, non-destructive overload protection**

- Disengaging
- Steplessly adjustable
- Precise
- Compact
- Robust



## Tested safety

For more than 40 years, we have been dimensioning, developing and manufacturing safety clutches for heavy load applications.

You can rely on the tested reliability and safety of our heavy load clutch.

## **Experts, not experiments**

as safety does not allow for compromises

safe – reliable – innovative



### EAS<sup>®</sup>-HT short bearing-supported hub



**Torque:**  
**4 to 40 kNm**

Sizes 7 to 10  
Type 4050.\_0400

- Direct attachment of the drive element on the bearing-supported, output-side clutch flange.
- The bearing is able to absorb high additional forces in axial and radial directions.

Page 6

### EAS<sup>®</sup>-HT lastic



**Torque:**  
**4 to 40 kNm**

Sizes 7 to 10  
Type 4053.\_0400

- Double shaft design with a flexible, positive locking coupling
- Absorbs impact-type loads

Page 8

### EAS<sup>®</sup>-HT flange design



**Torque:**  
**7.5 to 440 kNm**

Sizes 0 to 6  
Type 4060.71400

- Compact, ready-to-install module
- Can easily be integrated into the drive line

Page 10

### EAS<sup>®</sup>-HT Toothed coupling



**Torque:**  
**7.5 to 440 kNm**

Sizes 0 to 6  
Type 4061.71400

- Double shaft design
- Toothed coupling with crowned teeth cutting
- Robust and temperature-resistant
- High misalignment compensation capability

Page 12

### EAS<sup>®</sup>-HT backlash-free



**Torque:**  
**7.5 to 140 kNm**

Sizes 0 to 4  
Type 4062.71400

- Double shaft design with a torsionally rigid, backlash-free disk pack coupling
- High torsional rigidity
- Backlash-free torque transmission
- Maintenance-free

Page 14

### EAS<sup>®</sup>-HT lastic bolt



**Torque:**  
**40 to 260 kNm**

Sizes 3 to 5  
Type 4063.70400

- Double shaft design with a flexible, positive locking coupling
- Absorbs impact-type loads

Page 16

## EAS<sup>®</sup>-HT Options

Customer-specific designs  
Low temperature design  
Alternative shaft connections  
ATEX

Page 18

## EAS<sup>®</sup>-elements

- Standard
- Reinforced



- Torque limiting or force limiting elements
- Installation into two flanges located towards one another
- Integration into existing constructions possible

Page 20

## Technical Explanations

General  
Pre-selection  
Misalignment compensation capability

Page 23

## Additional branch-optimised EAS<sup>®</sup> safety clutches

### High-speed clutches EAS<sup>®</sup>-HSE



**Torque:**  
100 to 8.400 Nm

Sizes 02 to 0  
Type 404\_ . \_04\_

Reliable overload protection  
at high speeds

For more information as well as detailed Technical Data and Dimensions, please see our product catalogue EAS<sup>®</sup>-HSC/ EAS<sup>®</sup>-HSE.

### Extruder clutches EAS<sup>®</sup>-dutytorque



**Torque:**  
70 to 17.000 Nm

Sizes 2 to 9  
Type 4043. \_1400

Protect extruder screws  
from expensive damage caused by overload

For more information as well as detailed Technical Data and Dimensions, please see our product catalogue EAS<sup>®</sup>-dutytorque.

### Rustproof design



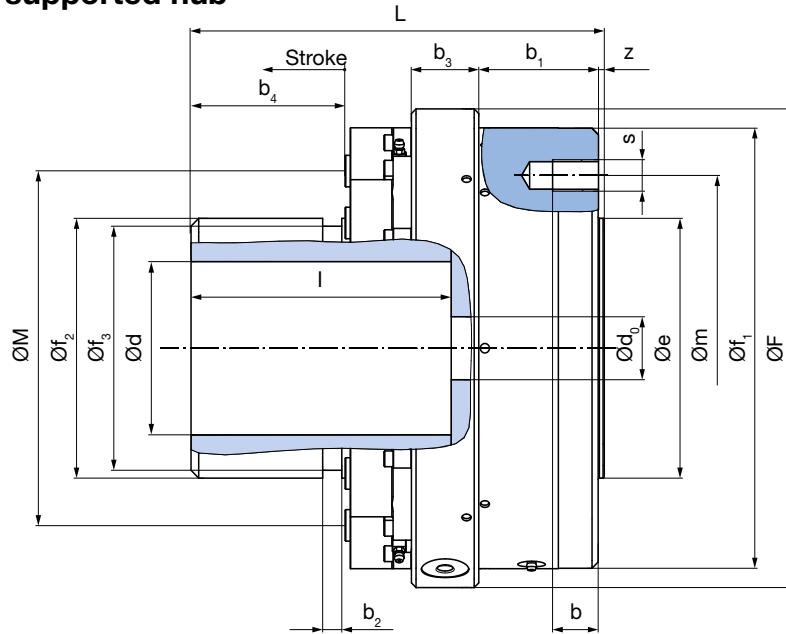
Corrosion-protected safety clutches for environmental and waste water technology

## EAS®-HT

### Short bearing-supported hub

Type 4050..0400

Sizes 7 to 10



### Order Number

— / 4 0 5 0 . — 0 4 0 0 / — / — / —



**Sizes**  
7  
to  
10

**Torque range <sup>1)</sup>**  
low  
medium  
high  
very high



4  
5  
6  
7



**Bores <sup>1)</sup>**  
Ø d<sup>H7</sup>



**Bore**  
Ø d<sub>0</sub>



**Torque adjust-  
ment value**  
[kNm]

Keyway acc. DIN 6885/1 - P9

**Example: Order Number 8 / 4050.60400 / 90 / 35 / 84050.60400 / 90 / 35 / 8**

1) Position of the keyway to the tapped hole "s" in the thrust piece is not defined. Defined position available on request.

## EAS®-element clutch

Technical Data				Sizes			
				7	8	9	10
Limit torques for overload	Type 4050.40400	M <sub>G</sub>	[kNm]	1.3 - 2.6	1.6 - 3.2	4 - 8	5 - 10
	Number of EAS®-elements			2	2	2	2
	Type 4050.50400	M <sub>G</sub>	[kNm]	2 - 4	3.2 - 6.4	6 - 12	10 - 20
	Number of EAS®-elements			3	4	3	4
	Type 4050.60400	M <sub>G</sub>	[kNm]	2.6 - 5.2	4.8 - 9.6	8 - 16	15 - 30
	Number of EAS®-elements			4	6	4	6
	Type 4050.70400	M <sub>G</sub>	[kNm]	4 - 8	6.5 - 13	12 - 24	20 - 40
	Number of EAS®-elements			6	8	6	8
Sizes EAS®-elements				0	0	1	1
Maximum speed		n <sub>max</sub>	[rpm]	3000	2800	2500	2200
Bolt stroke on overload			[mm]	6	6	8	8

Max. permitted forces on the flange connection				Sizes			
				7	8	9	10
Radial forces	Type 4050._0400	$F_R$	[kN]	15	20	30	40
Axial forces		$F_A$	[kN]	10	15	20	30

Mass moments of inertia and weights				Sizes			
				7	8	9	10
EAS®-hub-side	Type 4050._0400	J	[kgm²]	0.18	0.38	1.05	2.37
Flange side	Type 4050._0400	J	[kgm²]	0.17	0.38	1.3	2.65
Weight at $d_{max}$	Type 4050._0400		[kg]	47	76	145	232

Bores [mm]			Sizes			
			7	8	9	10
EAS®-hub-side		$d_{max}$	90 <sup>H7</sup>	110 <sup>H7</sup>	135 <sup>H7</sup>	160 <sup>H7</sup>
Flange side		$d_{0 max}$	30	40	48	58

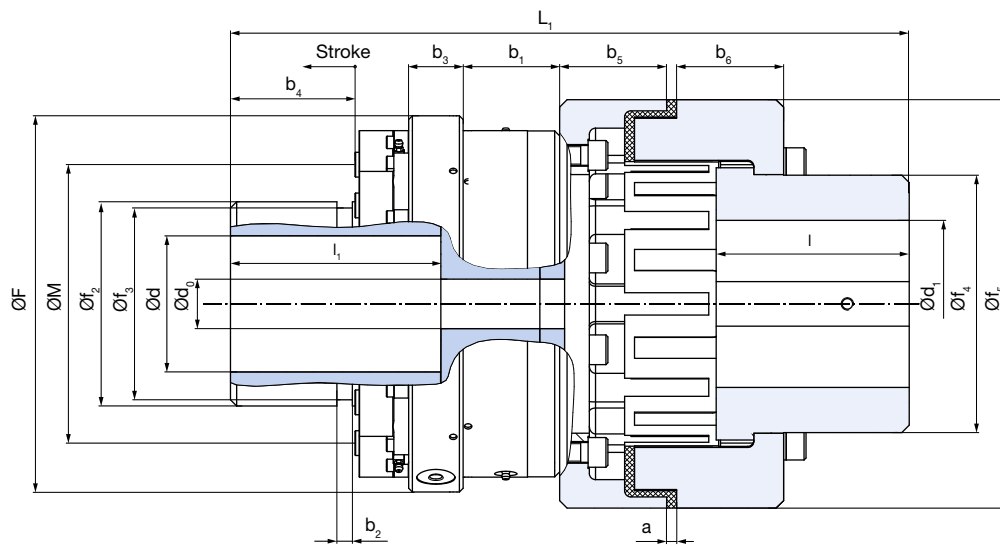
Dimensions [mm]	Sizes			
	7	8	9	10
<b>b</b>	25	30	35	35
<b>b<sub>1</sub></b>	66	78	94	110
<b>b<sub>2</sub></b>	12.5	12.5	15	15
<b>b<sub>3</sub></b>	44	44	56	56
<b>b<sub>4</sub></b>	70.5	100.5	119.3	159.3
<b>e<sub>h7</sub></b>	147	165	242	276
<b>F</b>	260	304	380	450
<b>f<sub>1</sub></b>	237.5	279.5	359.5	417.5
<b>f<sub>2</sub></b>	120	165	190	245
<b>f<sub>3</sub></b>	110	155	180	230
<b>L</b>	228	270	330	387
<b>l</b>	140	170	210	250
<b>M</b>	180	225	270	340
<b>m</b>	190	220	285	325
<b>s</b>	8xM16	8xM20	8xM24	12xM24
<b>z</b>	4	4	5	6

We reserve the right to make dimensional and constructional alterations.

## EAS®-HT

lastic

Type 4053\_0400  
Sizes 7 to 10



### Order Number

\_\_ / 4 0 5 3 . \_\_ 0 4 0 0 / \_\_ / \_\_ / \_\_ / \_\_



**Sizes**  
7  
to  
10

**Torque range**  
low  
medium  
high  
very high



4  
5  
6  
7



**Bore**  
Ø d<sup>H7</sup>



**Bore**  
Ø d<sub>0</sub>



**Bore**  
Ø d<sub>1</sub><sup>H7</sup>



**Torque adjust-  
ment value**  
[kNm]

Keyway acc. DIN 6885/1 - P9

Example: Order Number 8 / 4053.60400 / 90 / 35 / 115 / 8



## EAS®-element clutch

Technical Data				Sizes			
				7	8	9	10
Limit torques for overload	Type 4053.40400	M <sub>G</sub>	[kNm]	1.3 - 2.6	1.6 - 3.2	4 - 8	5 - 10
	Number of EAS®-elements			2	2	2	2
	Type 4053.50400	M <sub>G</sub>	[kNm]	2 - 4	3.2 - 6.4	6 - 12	10 - 20
	Number of EAS®-elements			3	4	3	4
	Type 4053.60400	M <sub>G</sub>	[kNm]	2.6 - 5.2	4.8 - 9.6	8 - 16	15 - 30
	Number of EAS®-elements			4	6	4	6
	Type 4053.70400	M <sub>G</sub>	[kNm]	4 - 8	6.5 - 13	12 - 24	20 - 40
	Number of EAS®-elements			6	8	6	8
Sizes EAS®-elements				0	0	1	1
Maximum speed		n <sub>max</sub>	[rpm]	2250	2000	1500	1400
Bolt stroke on overload			[mm]	6	6	8	8
Flexible shaft coupling	Permitted misalign- ments <sup>1)</sup>	axial	ΔK <sub>a</sub>	[mm]	±2.5	±2.5	±2.5
		radial	ΔK <sub>r</sub>	[mm]	0.3	0.3	0.3
		angular	ΔK <sub>w</sub>	[mm]	0.3	0.3	0.3
Nominal and maximum torques, flexible coupling			T <sub>KN</sub>	[kNm]	5.8	9.9	20.5
			T <sub>K max</sub>	[kNm]	8.3	14.5	27

Mass moments of inertia and weights				Sizes			
				7	8	9	10
Mass moments of inertia	EAS®-hub-side	J	[kgm²]	0.18	0.38	1.05	2.37
	Flexible side	J	[kgm²]	0.57	1.62	5.0	10.7
Weight at d <sub>max</sub>			[kg]	85	154	282	464

Bores [mm]			Sizes			
			7	8	9	10
EAS®-hub-side		$d_{max}$	90 <sup>H7</sup>	110 <sup>H7</sup>	135 <sup>H7</sup>	160 <sup>H7</sup>
Bearing flange		$d_{0 max}$	30	40	48	58
Flexible side		$d_{1 max}$	115 <sup>H7</sup>	135 <sup>H7</sup>	180 <sup>H7</sup>	200 <sup>H7</sup>

Dimensions [mm]	Sizes			
	7	8	9	10
a	5.5	8	8	8
b <sub>1</sub>	66	78	94	110
b <sub>2</sub>	12.5	12.5	15	15
b <sub>3</sub>	44	44	56	56
b <sub>4</sub>	70.5	100.5	119.3	159.3
b <sub>5</sub>	76	86.5	102	108
b <sub>6</sub>	76	86.5	102	108
F	260	304	380	450
f <sub>2</sub>	120	165	190	245
f <sub>3</sub>	110	155	180	230
f <sub>4</sub>	164	208	275	289
f <sub>5</sub>	265	330	415	480
L <sub>1</sub>	469.5	548.5	668	754
I	137	156	196	220
I <sub>1</sub>	140	170	210	250
M	180	225	270	340

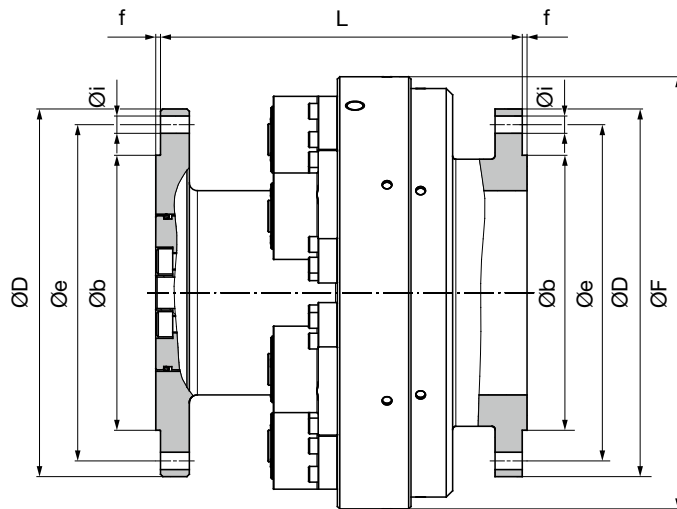
We reserve the right to make dimensional and constructional alterations.

1) The values refer to 1500 rpm.

## EAS®-HT

### flange design

Type 4060.71400  
Sizes 0 to 6



#### Order Number

— / 4 0 6 0 . 7 1 4 0 0 / —



Sizes 0 to 6



Torque adjust-  
ment value  
[kNm]

Example: Order number 5/ 4060.71400 / 200

## EAS®-element clutch

Technical Data			Sizes						
			0	1	2	3	4	5	6
Limit torques for overload	$M_G$	[kNm]	7.5 - 15	12.5 - 25	20 - 40	37.5 - 75	70 - 140	125 - 250	220 - 440
Number of EAS®-elements			6	8	6	8	12	10	10
Sizes EAS®-elements			0	0	1	1	1	2	2 <sup>1)</sup>
Maximum speed	$n_{max}$	[rpm]	2000	1750	1500	1250	1000	900	750
Bolt stroke on overload		[mm]	6	6	8	8	8	12	12

Mass moments of inertia and weights			Sizes						
			0	1	2	3	4	5	6
EAS®-element-side	J	[kgm <sup>2</sup> ]	0.25	0.5	1.16	2.71	5.51	16.29	27.87
EAS®-pressure flange side	J	[kgm <sup>2</sup> ]	0.19	0.37	0.96	2.05	4.22	10.29	19.3
Weight at $d_{max}$		[kg]	56	77	142	212	303	627	814

Dimensions [mm]	Sizes						
	0	1	2	3	4	5	6
$b_{h7}$	175	230	255	310	340	460	540
e	214	269	306	360	400	531	618
D	234	292	330	390	430	567	660
F	275	320	380	455	545	640	740
f	3	3	4	4	5	6	6
i	11	13	13	17	17	21	25
L	226	243	298	312	328	476	485

We reserve the right to make dimensional and constructional alterations.

**Type 4061.71400**  
**Sizes 0 to 6**



## EAS®-element clutch

Technical Data			Sizes						
			0	1	2	3	4	5	6
Limit torques for overload	$M_G$	[kNm]	7.5 - 15	12.5 - 25	20 - 40	37.5 - 75	70 - 140	125 - 250	220 - 440
Number of EAS®-elements			6	8	6	8	12	10	10
Sizes EAS®-elements			0	0	1	1	1	2	2 <sup>1)</sup>
Maximum speed	$n_{max}$	[rpm]	2000	1750	1500	1250	1000	900	750
Bolt stroke on overload		[mm]	6	6	8	8	8	12	12
Toothed coupling	Permitted misalignments <sup>1) 2)</sup>	axial $\Delta K_a$	[mm]	±2	±3	±3	±3	±3	±4
		radial $\Delta K_r$	[mm]	7.5	8.6	10.2	11.7	12.4	18.4
		angular $\Delta K_w$	[mm]	1.25	1.25	1.25	1.25	1.25	1.25
Nominal and maximum torques, curved-tooth coupling	$T_{KN}$	[kNm]	12.5	25	40	63	100	250	400
	$T_{Kmax}$	[kNm]	25	50	80	12.6	200	500	800

1) The values refer to 1500 rpm.

2) Per joint

Mass moments of inertia and weights			Sizes						
			0	1	2	3	4	5	6
EAS®-pressure flange side	J	[kgm <sup>2</sup> ]	0.27	0.65	1.48	3.33	6.43	19.17	39.74
EAS®-element side	J	[kgm <sup>2</sup> ]	0.34	0.78	1.69	3.99	7.72	25.18	48.3
Weight at $d_{max}$ / $d_{2max}$		[kg]	83	132	220	345	488	1053	1523

Bores [mm]			Sizes						
			0	1	2	3	4	5	6
EAS®-pressure flange side	$d_{max}$		95	130	150	185	210	285	340
EAS®-element side	$d_{2max}$		95	130	150	185	210	285	340

Dimensions [mm]	Sizes						
	0	1	2	3	4	5	6
$d_1$	135	185	210	255	290	400	480
$d_3$	135	185	210	255	290	400	480
$D_1$	195	251	288	337	375	502	584
$D_2$	195	251	288	337	375	502	584
F	275	320	380	455	545	640	740
f	234	292	330	390	430	567	660
$f_1$	234	292	330	390	430	567	660
L	226	242.5	298	312	328	476	485
$L_1$	434	502.5	588	685	740	1012	1125
$L_2$	104	130	145	186.5	206	268	320
$L_3$	104	130	145	186.5	206	268	320
I	100	125	140	180	200	260	310
$I_1$	100	125	140	180	200	260	310

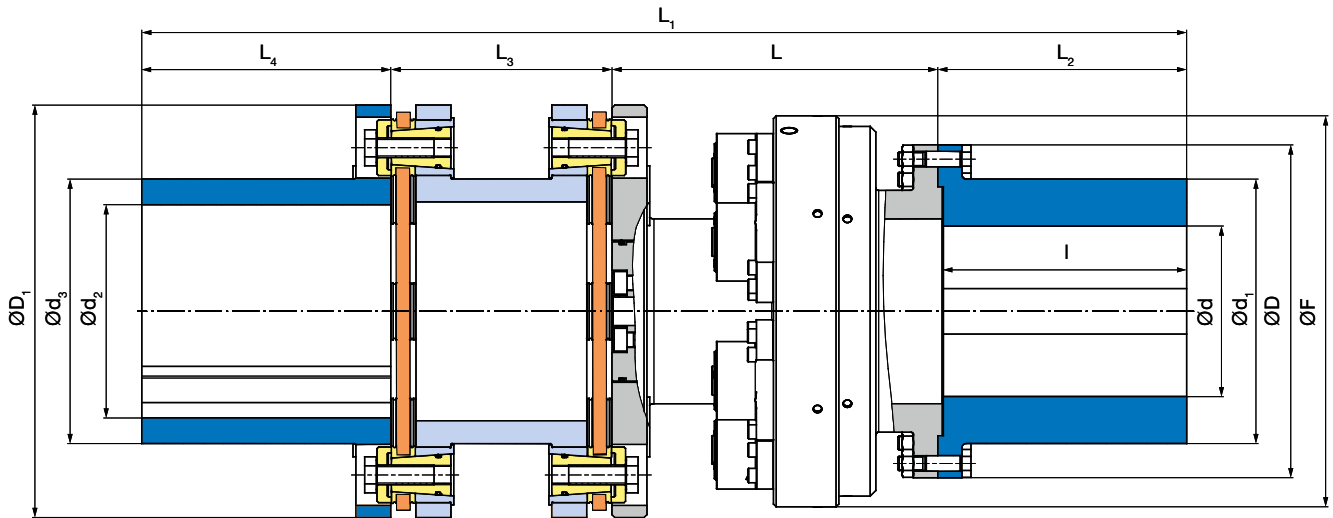
We reserve the right to make dimensional and constructional alterations.



## EAS®-HT

backlash-free

Type 4062.71400  
Sizes 0 to 4



### Order Number

— / 4 0 6 2 . 7 1 4 0 0 / — / — / —



Sizes 0 to 4



Double-jointed  
coupling

0



Bore  
 $\text{Ø } d^{H7}$

Keyway acc. DIN 6885/1 - P9



Bore  
 $\text{Ø } d_2^{H7}$



Torque adjust-  
ment value  
[kNm]

Example: Order number 4 / 4062.71400 / 180 / 200 / 90

## EAS®-element clutch

Technical Data					Sizes				
					0	1	2	3	4
Limit torques for overload			M <sub>G</sub>	[kNm]	7.5 - 15	12.5 - 25	20 - 40	37.5 - 75	70 - 140
Number of EAS®-elements					6	8	6	8	12
Sizes EAS®-elements					0	0	1	1	1
Maximum speed			n <sub>max</sub>	[rpm]	2000	1750	1500	1250	1000
Bolt stroke on overload				[mm]	6	6	8	8	8
Torsionally rigid shaft coupling	Permitted misalignments <sup>1)</sup>	axial	ΔK <sub>a</sub>	[mm]	1.6	1.7	2.1	2.3	2.3
		radial	ΔK <sub>r</sub>	[mm]	1.0	1.0	1.1	1.3	1.4
		angular	ΔK <sub>w</sub>	[°]	0.4	0.4	0.4	0.4	0.4
Nominal and maximum torques, torsionally rigid all-steel coupling			T <sub>KN</sub>	[kNm]	22	33	50	73	110
			T <sub>K max</sub>	[kNm]	44	66	100	146	220

1) The values refer to 1500 rpm.

Mass moments of inertia and weights				Sizes				
				0	1	2	3	4
Mass moments of inertia	Hub side	J	[kgm²]	0.35	0.76	1.58	3.68	6.56
	torsionally rigid side	J	[kgm²]	0.86	1.73	3.5	7.1	13.95
Weight at $d_{max}$			[kg]	132	195	308	468	665

Bores [mm]			Sizes				
			0	1	2	3	4
Hub-side		$d_{max}$	140	170	180	220	240
Torsionally rigid side		$d_{2 max}$	140	160	180	210	240

Dimensions [mm]	Sizes				
	0	1	2	3	4
$d_1$	186	230	243	300	321
$d_3$	186	215	243	279	321
$D$	234	292	330	390	430
$D_1$	290	332	378	431	492
$F$	275	320	380	455	545
$L$	229	245.5	302	316	330
$L_1$	735	811.5	934	1054.5	1173
$L_2$	175	200	225	265	310
$L_3$	155.6	166	182	208.4	223
$L_4$	175	200	225	265	310
$I$	171	195	219	260	302

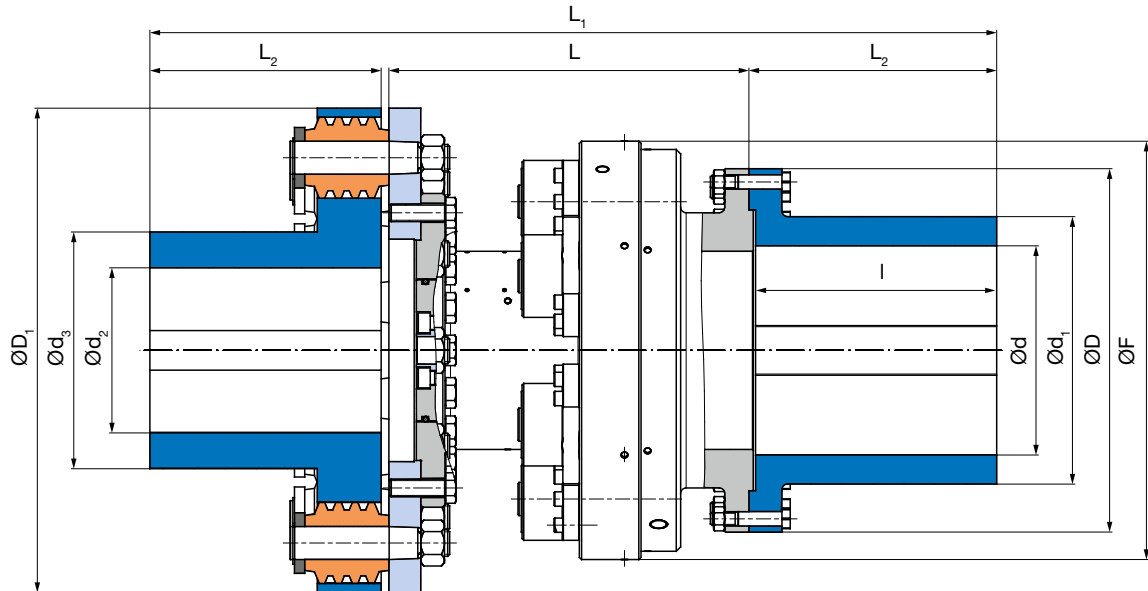
We reserve the right to make dimensional and constructional alterations.

## EAS<sup>®</sup>-HT

lastic bolt

Type 4063.70400

Sizes 4 to 6



### Order Number

— / 4 0 6 3 . 7 0 4 0 0 / — / — / —



Sizes 4 to 6



Bore  
 $\varnothing d^{H7}$

Keyway acc. DIN 6885/1 - P9



Bore  
 $\varnothing d_2^{H7}$



Torque adjust-  
ment value  
[kNm]

Example: Order number 4 / 4063.70400 / 270 / 180 / 90

## EAS®-element clutch

Technical Data				Sizes		
				4	5	6
Limit torques for overload	$M_G$	[kNm]		40 - 80	72.5 - 145	130 - 260
Number of EAS®-elements				12	10	10
Sizes EAS®-elements				1	2	2
Maximum speed	$n_{max}$	[rpm]		1000	900	750
Bolt stroke on overload		[mm]		8	12	12
Flexible shaft coupling	Permitted misalignments <sup>1)</sup>	axial	$\Delta K_a$	[mm]	$\pm 4$	$\pm 4$
		radial	$\Delta K_r$	[mm]	1.5	1.5
		angular	$\Delta K_w$	[mm]	4.6	5.3
Nominal and maximum torques, flexible coupling			$T_{KN}$	[kNm]	48	100
			$T_{K max}$	[kNm]	96	200
					320	320

Mass moments of inertia and weights				Sizes		
				4	5	6
Mass moments of inertia	Hub side	J	[kgm <sup>2</sup> ]	6.6	20.02	39.63
	Flexible side	J	[kgm <sup>2</sup> ]	22.35	55.18	110.68
Weight at $d_{max}$			[kg]	706	1407	1956

Bores [mm]			Size		
			4	5	6
Hub-side		$d_{max}$	240	300	340
Flexible side		$d_{2 max}$	225	250	320

Dimensions [mm]	Sizes		
	4	5	6
$d_1$	321	420	500
$d_3$	320	360	450
$D$	430	567	660
$D_1$	660	760	920
$F$	545	640	740
$L$	375	533	543
$L_1$	946	1201	1231
$L_2$	310	350	370
$L_3$	250	300	300
$I$	302	342	362

We reserve the right to make dimensional and constructional alterations.

1) The values refer to 1500 rpm.

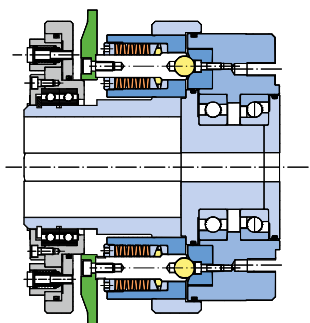
## EAS<sup>®</sup>-HT Options

For the EAS<sup>®</sup>-HT clutches, designs specially created according to customer requests and different variants are also available.

EAS<sup>®</sup>-HT clutches can be combined with additional attachment parts.

**We are happy to advise you on the dimensioning and configuration of your optimum design.**

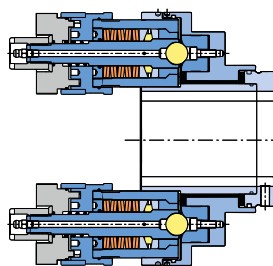
### EAS<sup>®</sup>-HT with automatic re-engagement



After overload occurrence, the EAS<sup>®</sup>-HT safety clutch is disengaged. It is possible to engage the EAS<sup>®</sup>-HT safety clutch via remote control by means of automatic re-engagement. Re-engagement can be carried out pneumatically, hydraulically, electromechanically or mechanically.



### EAS<sup>®</sup>-HT with mechanical disengagement

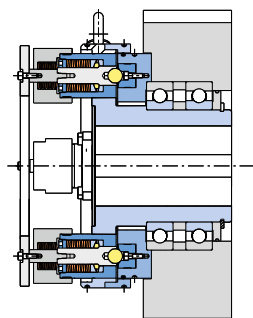


Mechanical disengagement device for the EAS<sup>®</sup>-elements.

The EAS<sup>®</sup>-elements can be disengaged individually mechanically.



### EAS<sup>®</sup>-HT with engagement bowl

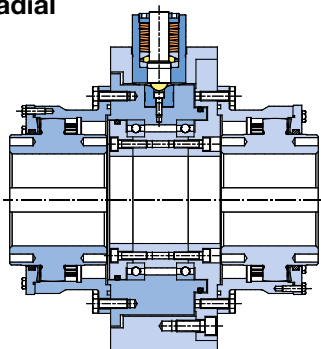


Engagement without aids.

Automatic engagement device for low operating speeds. Direct overload query possible through switching disk.



### EAS<sup>®</sup>-HT radial



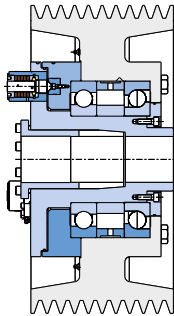
EAS<sup>®</sup>-HT radial for small construction space length values and low to medium operating speed values.





## EAS<sup>®</sup>-HT Options

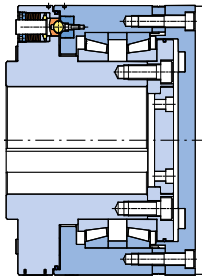
### EAS<sup>®</sup>-HT with integrated drive elements



EAS<sup>®</sup>-HT, integrated attachment of sprocket and toothed wheels, V-belt disks etc.



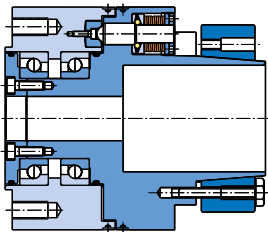
### EAS<sup>®</sup>-HT for roller gears



Highest torques at lowest diameters.  
The alternative to hydraulic clamping sets and shear pins in rolling mills.



### Frictionally-locking shaft-hub connection



#### Frictionally-locking shaft-hub connections:

- Shrink disk (see Fig.)
- External shrink disk
- Oil press fit

### EAS<sup>®</sup>-HT low temperature design



Reliable overload protection in case of very low temperatures to -48 °C.

(Please contact the manufacturer separately for this).



### ATEX design



EAS<sup>®</sup>-HT safety clutches are also available in ATEX design according to the directive 94/9 EC (ATEX 95).

(Please contact the manufacturer separately for this).

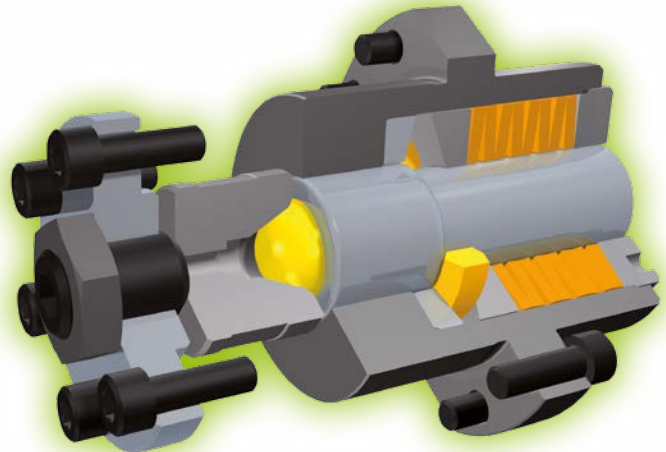
## EAS<sup>®</sup>-element

### Application

- ☐ EAS<sup>®</sup>-elements for installation in two bearing-supported flanges facing each other or for integration into existing constructions
- ☐ As EAS<sup>®</sup>-HT safety clutch component
- ☐ For customer-specific constructions

### Applications

- ☐ Conveyor belts
- ☐ Crushers
- ☐ Rolling mills
- ☐ Underground mining / mining
- ☐ Raw material extraction



### Advantages/Benefits

- ☐ Safe overload protection
- ☐ Can be used flexibly and in modular form
- ☐ Maximum performance density
- ☐ Release forces adjustable
- ☐ Easy and quick engagement
- ☐ Large number of disengagement procedures



*Rustproof design  
available on request*

### Function:

Positive locking transmission of circumferential force and axial force. In case of overload, the EAS<sup>®</sup>-elements separate the input and output mechanically, so that the system can slow down freely. Manual re-engagement of the individual elements (automatic re-engagement available on request).

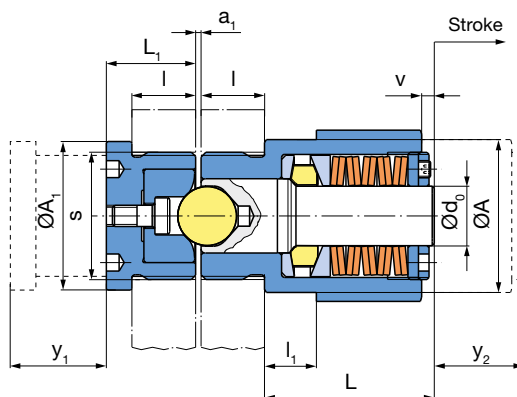
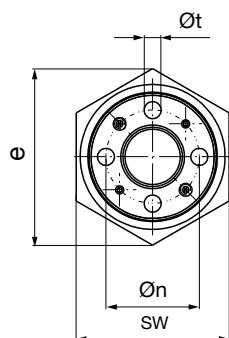


The catalogue contains basic information on pre-selection and dimensioning.

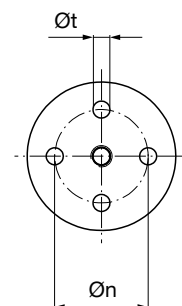
For detailed information on selection, dimensioning, installation, initial operation and maintenance, please see the Installation and Operational Instructions.

## EAS®-element

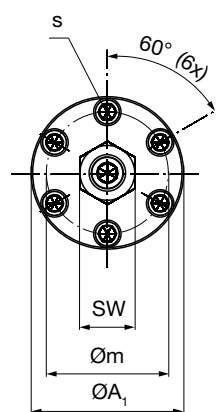
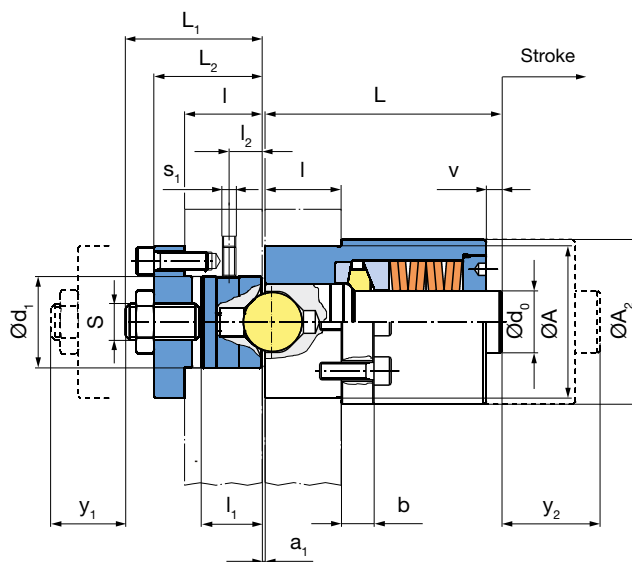
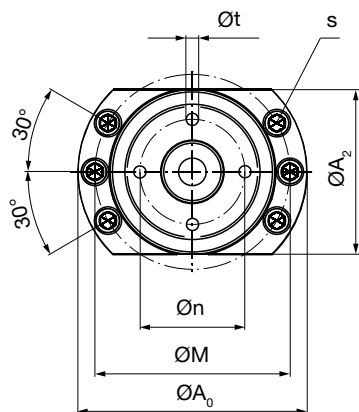
### Standard



### Type 440..04.0 Sizes 02 to 01

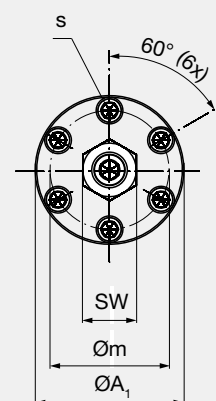
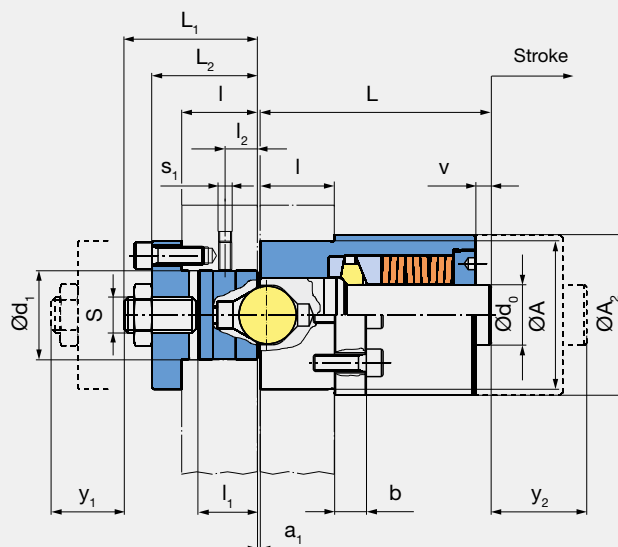
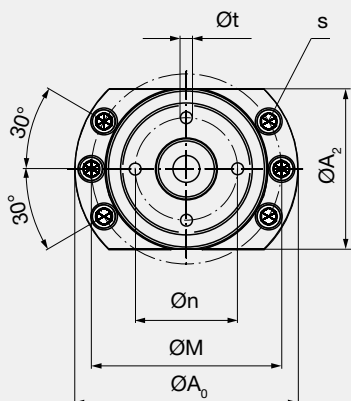


### Type 440..04.0 Sizes 0 to 2



### Reinforced

### Type 441.604.0 Sizes 0 to 2



## EAS®-element

Technical Data				Sizes				
				02	01	0	1	2
Circumferential force	Type 440.404.0 (Low torque range)	$F_{u \min}$	[kN]	0.22	1	1.8	5	4
		$F_{u \max}$	[kN]	0.54	2	5	10	11
	Type 440.504.0 (Medium torque range)	$F_{u \min}$	[kN]	0.5	1.25	3.75	7.5	10
		$F_{u \max}$	[kN]	1.4	2.5	7.5	15	30
	Type 440.604.0 (High torque range)	$F_{u \min}$	[kN]	1.2	2.5	7.5	15	30
		$F_{u \max}$	[kN]	2.5	5	15	30	60
Axial force	Type 441.604.0 Reinforced design	$F_{u \min}$	[kN]	-	-	19	38	75
		$F_{u \max}$	[kN]	-	-	38	75	150
	Type 440.404.0 (Low torque range)	$F_{ax \min}$	[kN]	0.2	0.9	1.62	4.5	3.6
		$F_{ax \max}$	[kN]	0.48	1.8	4.5	9	9.9
	Type 440.504.0 (Medium torque range)	$F_{ax \min}$	[kN]	0.45	1.12	3.37	6.75	9
		$F_{ax \max}$	[kN]	1.26	2.25	6.75	13.5	27
Bolt stroke on overload	Type 440.604.0 (High torque range)	$F_{ax \min}$	[kN]	1.08	2.25	6.75	13.5	27
		$F_{ax \max}$	[kN]	2.25	4.5	13.5	27	54
	Type 441.604.0 Reinforced design	$F_{ax \min}$	[kN]	-	-	10	20	40
		$F_{ax \max}$	[kN]	-	-	20	40	80
	Weights			[kg]	0.25	0.6	1.75	4.1

Dimensions [mm]	Sizes				
	02	01	0	1	2
$A_{H8/h7}$	28	38	55	75	100
$A_0$	-	-	85	110	150
$A_1$	28	35	55	75	100
$A_2$	-	-	55	75	108
$a_1$	1.0	1.5	2	2	3
$b$	-	-	12	15	20
$d_0$	10	14	20	30	40.6
$d_{H8/h7}$	-	-	30	40	60
$e$	31.2	41.6	-	-	-
$L$	28	40	73	96	160
$L_1$	15	21	52	65	80
$L_2$	-	-	42	51	70
$l$	12	15	30	40	50

Dimensions [mm]	Sizes				
	02	01	0	1	2
$l_1$	7	10	22	30	40
$l_2$	-	-	12	17	22
$M$	-	-	72	95	128
$m$	-	-	44	60	80
$n$	17	22	31	48	69
$S$	-	-	M12	M20	M24
$s$	M24x1 <sup>1)</sup>	M30x1,5 <sup>2)</sup>	M6 <sup>3)</sup>	M8 <sup>4)</sup>	M12 <sup>5)</sup>
$s_1$	-	-	M5	M6	M8
$SW$	27	36	19	30	36
$t$	3	4	5	6	8
$v$	2	3	3	4	15
$y_1^{6)}$	12	15	8	10	10
$y_2^{6)}$	16	21	38	50	65

We reserve the right to make dimensional and constructional alterations.

### EAS®-element Standard

#### Order Number

\_\_\_ / 4 4 0 . \_\_\_ 0 4 . 0

Size	Torque range	
02	low	4
01	medium	5
0	high	6
1		
2		

Example: Order number 0 / 440.504.0

### EAS®-element Reinforced

#### Order Number

\_\_\_ / 4 4 1 . 6 0 4 . 0

Size	
0	
1	
2	

Example: Order number 0 / 441.604.0

- 1) Tightening torque  $M_A = 40 \text{ Nm}$
- 2) Tightening torque  $M_A = 60 \text{ Nm}$
- 3) Fixing screw DIN EN ISO 4762 10.9  $M_A = 9 \text{ Nm}$

- 4) Fixing screw DIN EN ISO 4762 10.9  $M_A = 19 \text{ Nm}$
- 5) Fixing screw DIN EN ISO 4762 10.9  $M_A = 76 \text{ Nm}$
- 6)  $y_1$  and  $y_2$  are extension dimensions

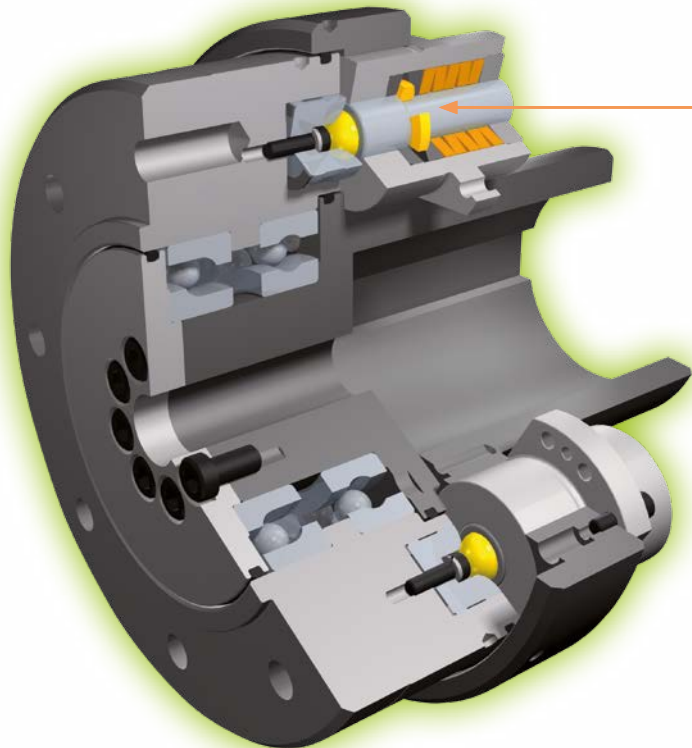
## Technical explanations EAS<sup>®</sup>-HT safety clutch

### Characteristics

- ☐ Positive locking torque transmission acc. to the ball-detent principle
- ☐ Adjustable torque
- ☐ Separates disengagingly
- ☐ Easy repeat operation start-up
- ☐ Robust
- ☐ Long service lifetime



**Rustproof design**  
available on request



### Design

All clutch parts are made of steel. EAS<sup>®</sup>-HT safety clutch basic components have a zinc-phosphated surface which provides a basic corrosion protection for further surface treatments.

Clutch types 4050, 4060 are also suitable for oil-running.

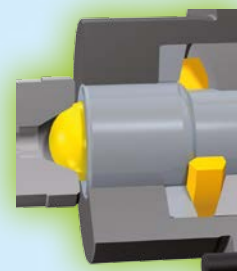
The limit torque for overload on the clutch can be adjusted by changing the cup spring pre-tension of each overload element.

The EAS<sup>®</sup>-HT safety clutches can be set to the required limit torque for overload at the place of manufacture. Subsequent torque changes can be carried out using the Adjustment Diagram included in the delivery (see respective Installation and Operational Instructions).

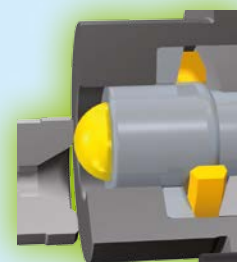
### Operating principle of the EAS<sup>®</sup>-HT safety clutch Overload elements

- ☐ If the proportional circumferential force on the individual elements proves too large, the resulting axial force causes an axial movement of the bolt via the ball/calotte system and therefore the disconnection of the torque transmission.
- ☐ The maximum circumferential force is individually determined through the adjusting nut and *mayr*<sup>®</sup>-cup springs. The transmittable torque is determined in this way.
- ☐ Due to the axial stroke of the bolt (ball carrier), the control segments move radially outwards, thereby disconnecting the components axially.
- ☐ Re-engagement of the balls through a bolt stroke in the direction of the calotte takes place either manually or via a *mayr*<sup>®</sup> re-engagement device (pneumatic, hydraulic, electromechanical or mechanical).

**Engaged**



**Disengaged**





## Technical explanations EAS<sup>®</sup>-HT safety clutch

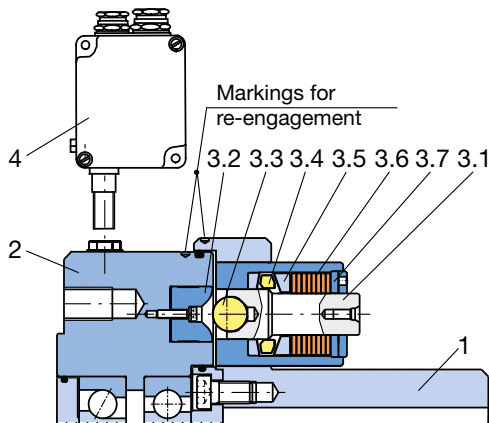


Fig. 2: EAS<sup>®</sup>-element clutch disengaged

### Processes for torque switch-off on overload:

On overload, the hub part 1 and the output flange 2 begin to turn against each other. The bolts 3.1 in the overload elements are pressed via the control segments 3.4 against the force of the cup springs 3.6 from the thrust washers 3.2. The control segments 3.4 travel radially outwards over the bolt 3.1 switching edge and hold the bolts 3.1 in a disengaged position (see Fig. 2). The positive locking connection of the hub part 1 and the output flange 2 is nullified. The originally coupled masses can slow down freely. The drive is switched off electrically via speed monitoring device 4.

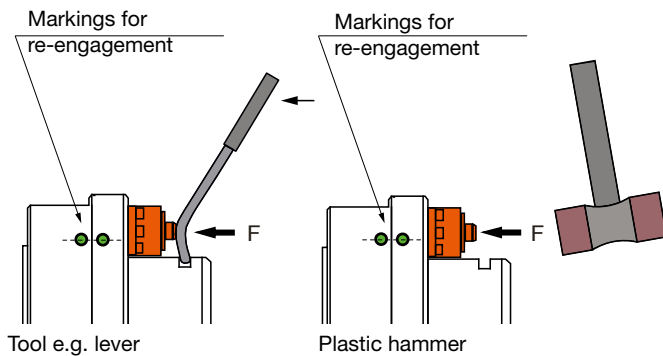


Fig. 3

### Re-engagement:

Turn the hub part 1 and the output flange 2 into the correct angular position to one another (re-engagement position can be recognized via the marking bores on the clutch outer diameter, Fig. 3). By applying axial pressure on the bolt end, bolts 3.1 are brought back to their engaged position. The clutch is ready for operation when all clutch overload elements are engaged.

### Maintenance

The EAS<sup>®</sup>-HT safety clutches do not require special maintenance work. They are largely protected against dust and humidity, they have an initial grease filling and are therefore mainly maintenance-free.

**EAS<sup>®</sup>-elements** Please find a detailed description in the respective Installation and Operational Instructions (go to [www.mayr.com](http://www.mayr.com)). Special maintenance work may be necessary, however, if the device is subject to large amounts of dirt or dust or is operating in extreme ambient conditions.

**In this case, please contact the manufacturer.**

### Mounting onto the shaft:

In a standard delivery, the EAS<sup>®</sup>-HT safety clutches are delivered with a finish bore and a keyway acc. DIN 6885/1 P9. The clutch can be secured axially onto the shaft e.g. using a washer and a screw, screwed into the shaft threaded centre hole.

**Optionally, we deliver a frictionally-locking shaft-hub connection (see EAS<sup>®</sup>-HT options, page 19).**

## Technical explanations EAS®-HT safety clutch

### Pre-selection of the clutch

Drive lines in heavy engineering are robust and designed for operation in adverse conditions. In contrast to systems with servomotor-driven drives, the torque course and the system behaviour often cannot be determined precisely.

Frequently, only the drive power of the motor and the permitted max. torque of the gear output are known.

Using tried-and-tested operating factors, clutch sizes suitable for the application can be pre-selected.

#### Pre-selection

$$T_N = \frac{9550 \times P}{n} \quad [\text{Nm}]$$

$$T_G \approx T_N \times K_B \quad [\text{Nm}]$$

Names:		
$T_N$	[Nm]	Nominal torque of the motor
$T_G$	[Nm]	Pre-selected release torque on the overload clutch
P	[KW]	Input power motor
n	[rpm]	Speed
$K_B$	[-]	Service factor

Service factors:		
2.5 - 3	medium impacts	Stirring units / pumps (viscid fluids) / kneading machines / mixing systems / conveyor belts / etc.
3 - 5	high impacts	Shredding machines / centrifuges / crushers / roll trains / construction machines / mining machines / etc.

In normal operation, the EAS®-HT transmits the set overload torque via positive locking. All torques for normal operation, including torque peaks, must be transmitted safely and must not cause the safety clutch to respond.

Often, the actual complex of loads (impacts) during operation (e.g. for shredding machines / mixers) are not known and can only be measured in the system with great effort.

Using software specially developed for the purpose, it is possible to simulate the behaviour in case of collisions of such drive lines.

The prerequisite is that all specifications are known:

- ☐ Mass moments of inertia
- ☐ Rigidities of all overload elements, including the overload clutch
- ☐ Parameters of the motor and the control circuit



Particularly in case of load-side vibration generation (e.g. piston compressors / shredding machines / etc.) or alternating torques **please contact us** to select a reliable, tried and tested overload protection for your production systems.

Here, the overload clutch is combined with suitable clutches, depending on the application:

- ☐ Elastomer coupling
- ☐ Shaft Couplings
- ☐ Curved-tooth coupling

Profit from our many years of market and application experience in different branches.

## Technical explanations EAS<sup>®</sup>-HT safety clutch

Misalignment compensation capability of the different shaft misalignment compensation couplings

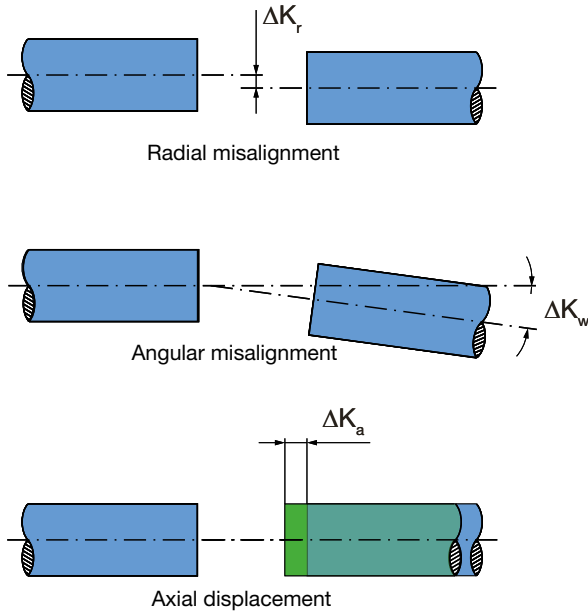


Fig. 4

### Shaft Misalignment

Misalignments between shafts occur due to manufacturing and assembly tolerances, bearing backlash and temperature influences.

This can cause axial, radial and angular shaft misalignment.

The shaft misalignment compensation coupling of the EAS-HT safety clutch can compensate for misalignments.

The misalignment possibilities of the shaft misalignment compensation coupling are general guideline values (see table "Technical Data").

In the application, the aim is to produce as precise a shaft alignment as possible, so that the bearing loads are reduced to a minimum.

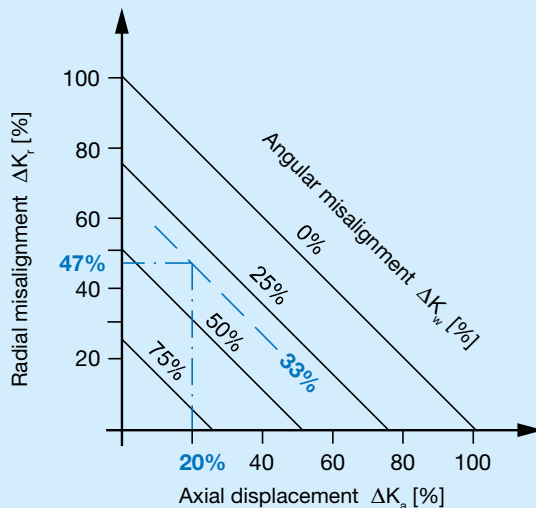


Fig. 5

If more than one kind of misalignment takes place simultaneously, they influence each other. The permitted misalignment values are dependent on one another. The sum total of the actual misalignments – in percent of the maximum value – must not exceed 100 %.

### Example:

EAS<sup>®</sup>-HT lastic, Size 8

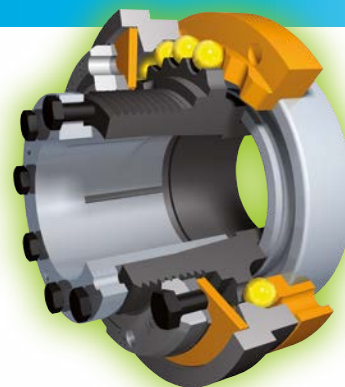
Type 4053.00400.0

- ☐ **Axial displacement** occurrence:  
 $\Delta K_a = 0.5$  mm; equals **20** % of the permitted maximum value  $\Delta K_a = 2.5$  mm
- ☐ **Angular misalignment** occurrence:  
 $\Delta K_w = 0.1$  mm, equals **33** % of the permitted maximum value  $\Delta K_w = 0.3$  mm
- ☐ **Radial displacement** occurrence:  
 $\Delta K_r = 0.14$  mm, equals **47** % of the permitted maximum value  $\Delta K_r = 0.3$  mm

## Product Summary

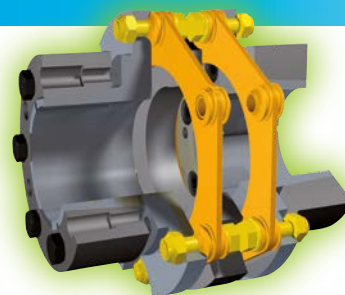
### Safety Clutches/Overload Clutches

- **EAS®-Compact®/EAS®-NC**  
Positive locking and completely backlash-free torque limiting clutches
- **EAS®-smartic®**  
Cost-effective torque limiting clutches, quick installation
- **EAS®-element clutch/EAS®-elements**  
Load-disconnecting protection against high torques
- **EAS®-axial**  
Exact limitation of tensile and compressive forces
- **EAS®-Sp/EAS®-Sm/EAS®-Zr**  
Load-disconnecting torque limiting clutches with switching function
- **ROBA®-slip hubs**  
Load-holding, frictionally locked torque limiting clutches
- **ROBA®-contitorque**  
Magnetic continuous slip clutches
- **EAS®-HSC/EAS®-HSE**  
High-speed safety clutches for high-speed applications



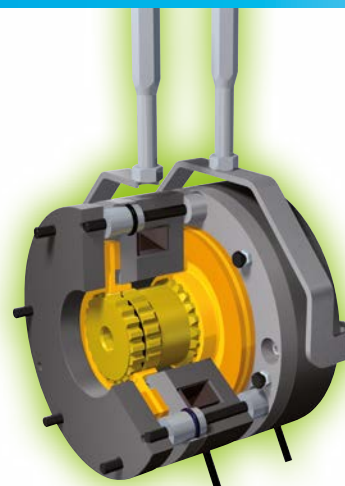
### Shaft Couplings

- **smartflex®/primeflex®**  
Perfect precision couplings for servo and stepping motors
- **ROBA®-ES**  
Backlash-free and damping for vibration-sensitive drives
- **ROBA®-DS/ROBA®-D**  
Backlash-free, torsionally rigid all-steel couplings
- **ROBA®-DSM**  
Cost-effective torque-measuring couplings



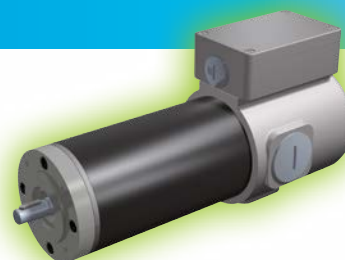
### Electromagnetic Brakes/Clutches

- **ROBA-stop® standard**  
Multifunctional all-round safety brakes
- **ROBA-stop®-M motor brakes**  
Robust, cost-effective motor brakes
- **ROBA-stop®-S**  
Water-proof, robust monoblock brakes
- **ROBA-stop®-Z/ROBA-stop®-silenzio®**  
Doubly safe elevator brakes
- **ROBA®-diskstop®**  
Compact, very quiet disk brakes
- **ROBA®-topstop®**  
Brake systems for gravity loaded axes
- **ROBA®-linearstop**  
Backlash-free brake systems for linear motor axes
- **ROBA®-guidestop**  
Backlash-free holding brake for profiled rail guides
- **ROBATIC®/ROBA®-quick/ROBA®-takt**  
Electromagnetic clutches and brakes, clutch brake units



### DC Drives

- **tendo®-PM**  
Permanent magnet-excited DC motors





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