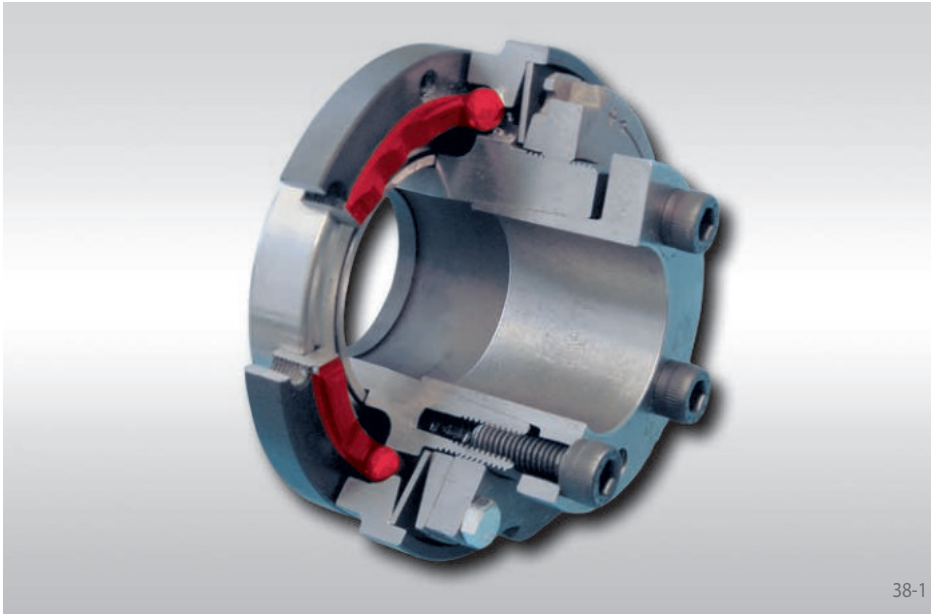
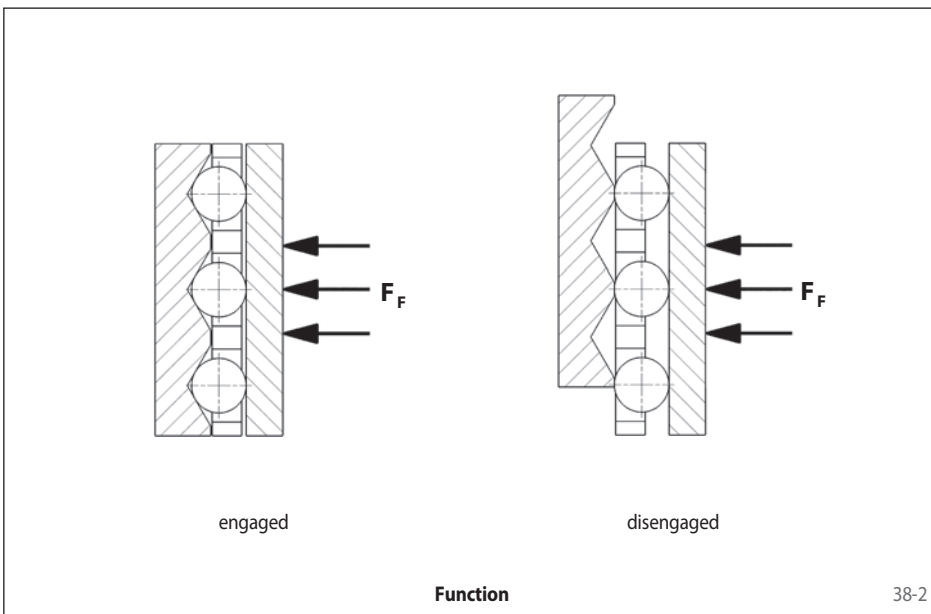


with balls



## Advantages

- Backlash free in both directions of rotation
- Compact design
- Integral ball bearing for supporting the component to be connected
- Very high response accuracy through the ball principle
- Simple and backlash free fastening onto shaft with integral cone clamping element
- Calibrated micro adjustment of torque setting possible, even post-installation



## The Ball Principle

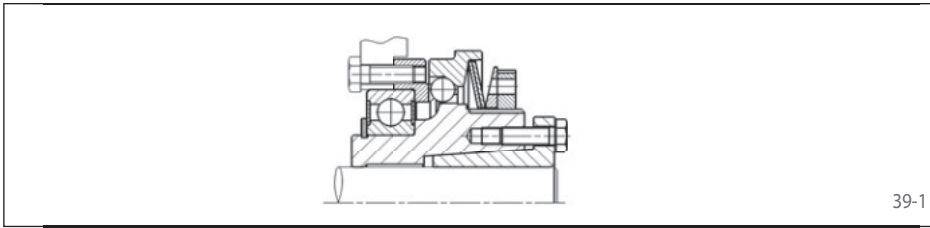
The torque is transmitted via balls which are pressed by Belleville springs into v-shaped grooves. The grooves are arranged axially on the output side and radially on the input side, which means that torque can be transmitted backlash free in both directions of rotation. When the preset limit torque has been reached, the groove-ring is displaced. Due to the unsymmetrical division of the grooves, re-engagement is effected synchronously after 360°, as soon as the overload has been eliminated. The negative characteristic disc springs give extremely fast, accurate and consistent overload protection.

## Function

- When the preset limit torque has been reached the SIKUMAT® ratchets through.
- Following elimination of overload automatic synchronous re-engagement of the SIKUMAT® to the starting position after 360°.
- The overload can be indicated by a proximity switch. This means that the drive can be switched off immediately or another control function can be activated.

### Types

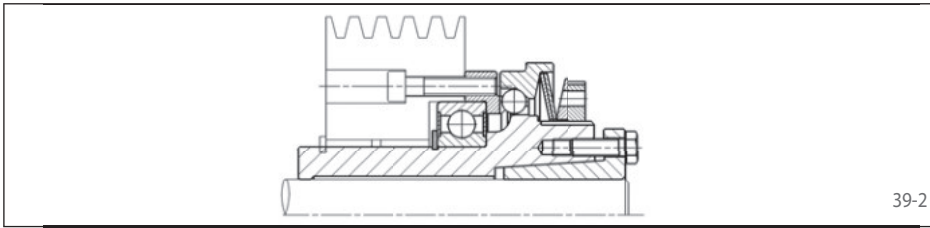
#### Series SU - Basic version with flange connection



For attaching chain wheels, belt pulleys, gear wheels etc. Support of the component to be connected directly on the integral ball bearing.

Page 40

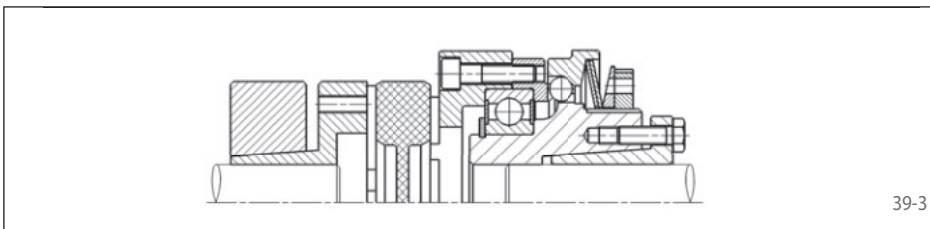
#### Series SUG - with long hub



With long hub for wide components to be connected. Support of the component to be connected directly on the integral ball bearing; additional radial bearing to be provided by the customer.

Page 41

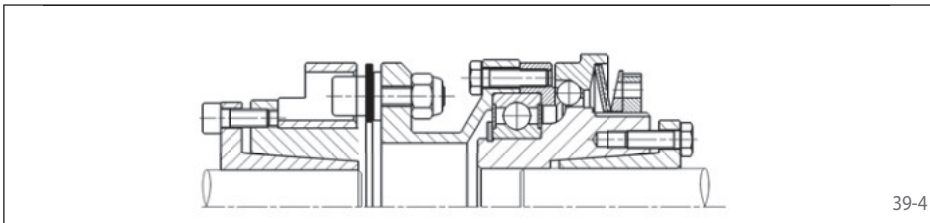
#### Series SUE - with flexible shaft coupling



For flexible connection of two shafts.

Page 42

#### Series SUL - with torsionally rigid shaft coupling



For rigid connection of two shafts.

Page 43

### Notes

#### Torque setting

The limit torque can be set at the factory on request. Setting or modification of the limit torque can also be carried out by the customer. See operating instructions for further details.

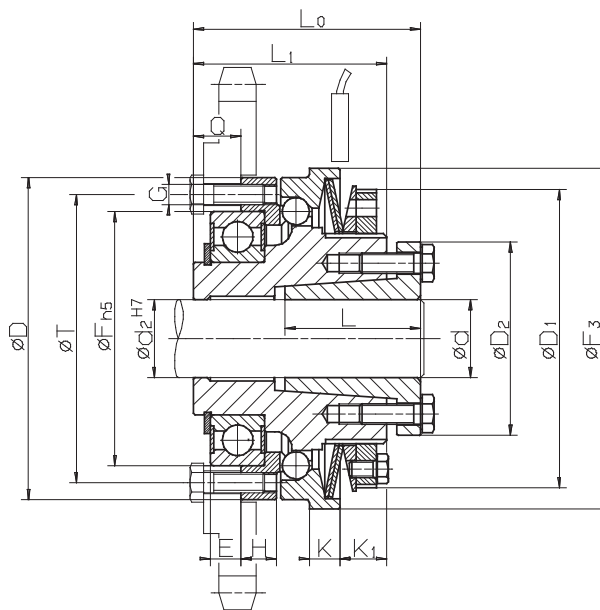
#### Proximity switch

An overload can be indicated by a non-contact or a mechanical proximity switch. Further details on pages 62 and 63.

# Synchronous Ratcheting SIKUMAT® SU - Backlash free

with balls

Basic version with flange connection



Z = number of tapped holes G on pitch circle T · Installation must be shut down as soon as torque limiter responds

40-1

## Technical Data

Type	Art.-No.	Torque type 1			Torque type 2			Torque type 3		
		Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number
SU 30.x	4479-025xxx	5 - 14	4000	101	10 - 28	4000	102	20 - 60	4000	103
SU 40.x	4479-030xxx	9 - 27	3000	101	18 - 54	3000	102	38 - 115	3000	103
SU 45.x	4479-040xxx	19 - 60	2500	101	38 - 125	2500	102	70 - 255	2500	103
SU 55.x	4479-050xxx	35 - 110	2000	101	80 - 220	2000	102	160 - 440	2000	103
SU 65.x	4479-060xxx	80 - 185	1200	101	160 - 370	1200	102	320 - 740	1200	103

## Dimensions

Type	Art.-No.	Bore d*		D	D <sub>1</sub>	D <sub>2</sub>	E	F	F <sub>3</sub>	G	H	K	K <sub>1</sub>	L	L <sub>0</sub>	L <sub>1</sub>	Q	T	Z	Engage-ment travel mm
		min. mm	max. mm																	
SU 30.x	4479-025xxx	10	20	65	63	40,5	5	47	70	M 4	7,5	7	12	26	47	40	8	56	8	1,2
SU 30.x	4479-025xxx	19	25	65	63	42	5	47	70	M 4	7,5	7	12	26	47	40	8	56	8	1,2
SU 40.x	4479-030xxx	15	30	80	77	57	7	62	85	M 5	8	8	12	31	56	46	11	71	8	1,5
SU 45.x	4479-040xxx	19	30	95	88	57	9	75	100	M 6	10,5	9	14	40	67	57	14	85	8	1,8
SU 45.x	4479-040xxx	32	40	95	88	64	9	75	100	M 6	10,5	9	14	31	67	57	14	85	8	1,8
SU 55.x	4479-050xxx	32	50	110	100	73,5	10	90	115	M 6	12	10	16	29	73	63	16	100	8	2,0
SU 65.x	4479-060xxx	32	50	130	122	73,5	10	100	135	M 8	12	12	21	29	85	75	18	116	8	2,2
SU 65.x	4479-060xxx	55	60	130	122	89	10	100	135	M 8	12	12	21	45,5	86	75	18	116	8	2,2

Hub bore diameter d<sub>2</sub> is equal to the selected diameter d and serves as an additional centering guide.

\*Available bore diameters d: 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55 and 60 mm.

## Example for Ordering

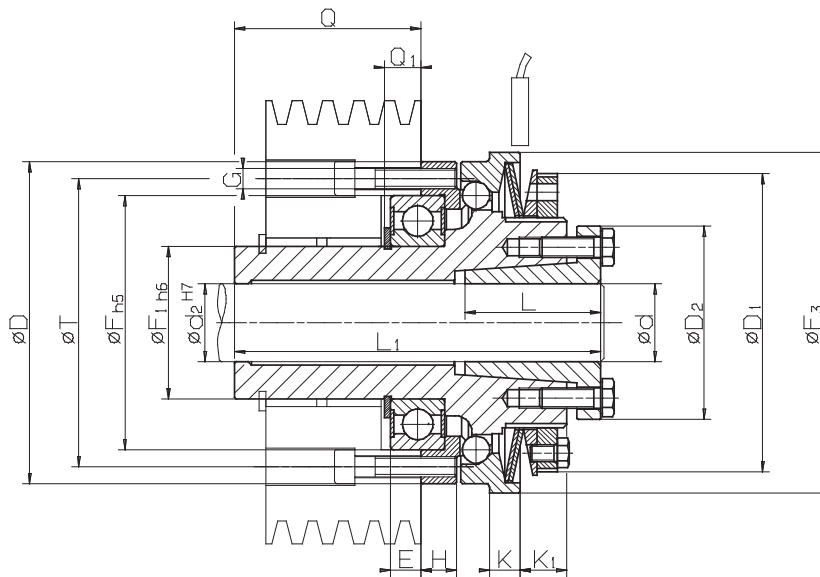
Type	Art.-No.	Preset limit torque	Bore d	with proximity switch
SU 40. 2	4479-030 102	25 Nm	20 mm	See pages 62 and 63

└─┬─┘  
Torque type

└─┬─┘  
End number

# Synchronous Ratcheting SIKUMAT® SUG - Backlash free

with balls  
with long hub



Z = number of tapped holes G on pitch circle T · Installation must be shut down as soon as torque limiter responds

41-1

## Technical Data

Type	Art.-No.	Torque type 1			Torque type 2			Torque type 3		
		Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number
SUG 30.x	4479-125xxx	5 - 14	4000	101	10 - 28	4000	102	20 - 60	4000	103
SUG 40.x	4479-130xxx	9 - 27	3000	101	18 - 54	3000	102	38 - 115	3000	103
SUG 45.x	4479-140xxx	19 - 60	2500	101	38 - 125	2500	102	70 - 255	2500	103
SUG 55.x	4479-150xxx	35 - 110	2000	101	80 - 220	2000	102	160 - 440	2000	103
SUG 65.x	4479-160xxx	80 - 185	1200	101	160 - 370	1200	102	320 - 740	1200	103

## Dimensions

Type	Art.-No.	Bore d*		D	D <sub>1</sub>	D <sub>2</sub>	E	F	F <sub>1</sub>	F <sub>3</sub>	G	H	K	K <sub>1</sub>	L	L <sub>1</sub>	Q	Q <sub>1</sub>	T	Z	Engage-ment travel mm
		min. mm	max. mm																		
SUG 30.x	4479-125xxx	10	20	65	63	40,5	5	47	30	70	M 4	7,5	7	12	26	72	33	6,5	56	8	1,2
SUG 30.x	4479-125xxx	19	25	65	63	42	5	47	30	70	M 4	7,5	7	12	26	72	33	6,5	56	8	1,2
SUG 40.x	4479-130xxx	15	30	80	77	57	7	62	40	85	M 5	8	8	12	31	88	43	8,75	71	8	1,5
SUG 45.x	4479-140xxx	19	30	95	88	57	9	75	45	100	M 6	10,5	9	14	40	108	55	11,5	85	8	1,8
SUG 45.x	4479-140xxx	32	40	95	88	64	9	75	45	100	M 6	10,5	9	14	31	108	55	11,5	85	8	1,8
SUG 55.x	4479-150xxx	32	50	110	100	73,5	10	90	55	115	M 6	12	10	16	29	124	67	13	100	8	2,0
SUG 65.x	4479-160xxx	32	50	130	122	73,5	10	100	65	135	M 8	12	12	21	29	140	73	14	116	8	2,2
SUG 65.x	4479-160xxx	55	60	130	122	89	10	100	65	135	M 8	12	12	21	45,5	141	73	14	116	8	2,2

Hub bore diameter d<sub>2</sub> is equal to the selected diameter d and serves as an additional centering guide.

\*Available bore diameters d: 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55 and 60 mm.

## Example for Ordering

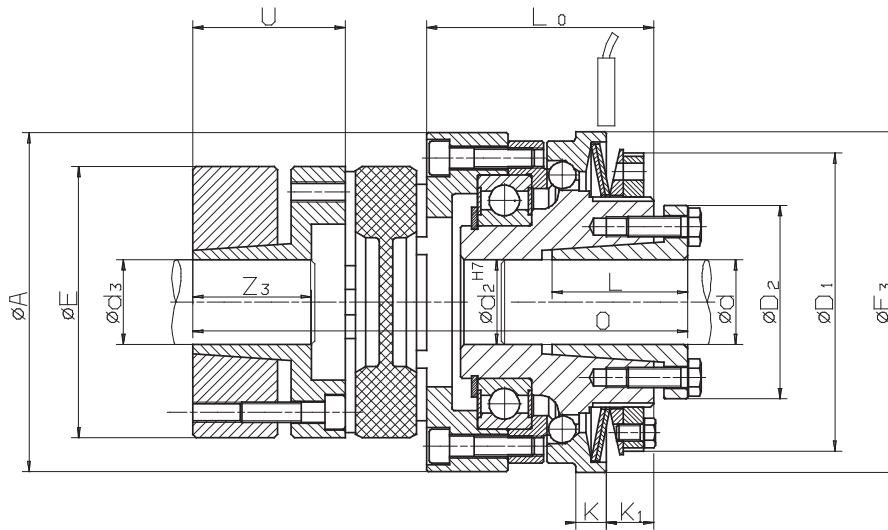
Type	Art.-No.	Preset limit torque	Bore d	with proximity switch
SUG 65. 1	4479-160 101	90 Nm	60 mm	See pages 62 and 63

└  
Torque type

└  
End number

# Synchronous Ratcheting SIKUMAT® SUE - Backlash free

with balls  
flexible shaft coupling



Installation must be shut down as soon as torque limiter responds

42-1

## Technical Data

Type	Art.-No.	Torque type 1			Torque type 2			Torque type 3		
		Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number
SUE 30.x	4479-625xxx	5 - 14	4000	101	10 - 28	4000	102	20 - 60	4000	103
SUE 40.x	4479-630xxx	9 - 27	3000	101	18 - 54	3000	102	38 - 115	3000	103
SUE 45.x	4479-640xxx	19 - 60	2500	101	38 - 125	2500	102	70 - 255	2500	103
SUE 55.x	4479-650xxx	35 - 110	2000	101	80 - 220	2000	102	160 - 440	2000	103
SUE 65.x	4479-660xxx	80 - 185	1200	101	160 - 370	1200	102	320 - 740	1200	103

## Dimensions

Type	Art.-No.	Bore d*		Bore d <sub>3</sub> **		A	D <sub>1</sub>	D <sub>2</sub>	E	F <sub>3</sub>	K	K <sub>1</sub>	L	L <sub>0</sub>	O	U	Z <sub>3</sub>	Engage-ment travel
		min. mm	max. mm	min. mm	max. mm													
SUE 30.x	4479-625xxx	10	20	15	28	70	63	40,5	55	70	7	12	26	47	102	30	30	1,2
SUE 30.x	4479-625xxx	19	25	15	28	70	63	42	55	70	7	12	26	47	102	30	30	1,2
SUE 40.x	4479-630xxx	15	30	15	38	85	77	57	65	85	8	12	31	54,5	119,5	35	35	1,5
SUE 45.x	4479-640xxx	19	30	20	45	100	88	57	80	100	9	14	40	67	146	45	45	1,8
SUE 45.x	4479-640xxx	32	40	20	45	100	88	64	80	100	9	14	31	67	146	45	45	1,8
SUE 55.x	4479-650xxx	32	50	25	50	115	100	73,5	95	115	10	16	29	73	159	50	50	2,0
SUE 65.x	4479-660xxx	32	50	30	55	135	122	73,5	105	135	12	21	29	87	182	56	56	2,2
SUE 65.x	4479-660xxx	55	60	30	55	135	122	89	105	135	12	21	45,5	87	182	56	56	2,2

Hub bore diameter d<sub>2</sub> is equal to the selected diameter d and serves as an additional centering guide.

\*Available bore diameters d: 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55 and 60 mm.

\*\*Available bore diameters d<sub>3</sub>: 15, 16, 19, 20, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50 and 55 mm.

## Example for Ordering

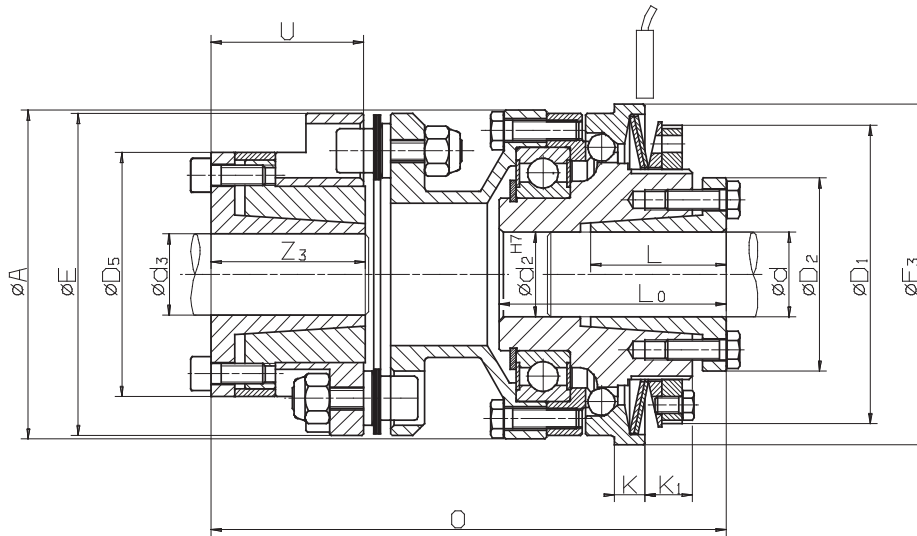
Type	Art.-No.	Preset limit torque	Bore d	Bore d <sub>3</sub>	with proximity switch
SUE 30. 1	4479-625 101	10 Nm	12 mm	20 mm	See pages 62 and 63

└─┬─┘  
Torque type

└─┬─┘  
End number

# Synchronous Ratcheting SIKUMAT® SUL - Backlash free

with balls  
with torsionally rigid shaft coupling



Installation must be shut down as soon as torque limiter responds

43-1

## Technical Data

Type	Art.-No.	Torque type 1			Torque type 2			Torque type 3		
		Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number	Limit torque Nm	max. speed min <sup>-1</sup>	End number
SUL 30.x	4479-425xxx	5 - 14	4000	101	10 - 28	4000	102	20 - 60	4000	103
SUL 40.x	4479-430xxx	9 - 27	3000	101	18 - 54	3000	102	38 - 115	3000	103
SUL 45.x	4479-440xxx	19 - 60	2500	101	38 - 125	2500	102	70 - 255	2500	103
SUL 55.x	4479-450xxx	35 - 110	2000	101	80 - 220	2000	102	160 - 440	2000	103
SUL 65.x	4479-460xxx	80 - 185	1200	101	160 - 370	1200	102	320 - 740	1200	103

## Dimensions

Type	Art.-No.	Bore d*		Bore d <sub>3</sub> **		A	D <sub>1</sub>	D <sub>2</sub>	D <sub>5</sub>	E	F <sub>3</sub>	K	K <sub>1</sub>	L	L <sub>0</sub>	O	U	Z <sub>3</sub>	Engage-ment travel
		min. mm	max. mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SUL 30.x	4479-425xxx	10	20	11	20	65	63	40,5	42	53	70	7	12	26	47	95,5	25,5	26,5	1,2
SUL 30.x	4479-425xxx	19	25	11	20	65	63	42	42	53	70	7	12	26	47	95,5	25,5	26,5	1,2
SUL 40.x	4479-430xxx	15	30	15	30	80	77	57	58	72	85	8	12	31	56	114,5	33	31	1,5
SUL 45.x	4479-440xxx	19	40	19	30	97	88	57	58	72	100	9	14	40	67	128	33	31	1,8
SUL 45.x	4479-440xxx	19	40	24	42	97	88	64	72	89	100	9	14	31	67	150	44,5	45	1,8
SUL 55.x	4479-450xxx	32	50	24	42	111	100	73,5	72	89	115	10	16	29	73	153,5	44,5	45	2,0
SUL 65.x	4479-460xxx	32	50	32	42	131	122	73,5	79	118	135	12	21	29	85	163,5	35	29	2,2
SUL 65.x	4479-460xxx	55	60	45	60	131	122	89	92	118	135	12	21	45,5	86	172,5	44	44	2,2

Hub bore diameter d<sub>2</sub> is equal to the selected diameter d and serves as an additional centering guide.

\*Available bore diameters d: 10, 11, 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55 and 60 mm.

\*\*Available bore diameters d<sub>3</sub>: 15, 16, 19, 20, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50 and 55 mm.

## Example for Ordering

Type	Art.-No.	Preset limit torque	Bore d	Bore d <sub>3</sub>	with proximity switch
SUL 55. 3	4479-450 103	420 Nm	45 mm	35 mm	See pages 62 and 63

Torque type

End number



**Morskate®**



Any questions? Please contact us.

**Morskate Aandrijvingen BV**

Oosterveldsingel 47A  
7558 PJ Hengelo (Ov)  
The Netherlands

NL

T +31 (0)74 - 760 11 11  
info@morskateaandrijvingen.nl  
www.morskateaandrijvingen.nl

DE

T +49 692 - 222 34 95  
info@morskateantriebstechnik.de  
www.morskateantriebstechnik.de

EN

T +31 (0)74 - 760 11 11  
info@morskatedrivetechnology.com  
www.morskatedrivetechnology.com