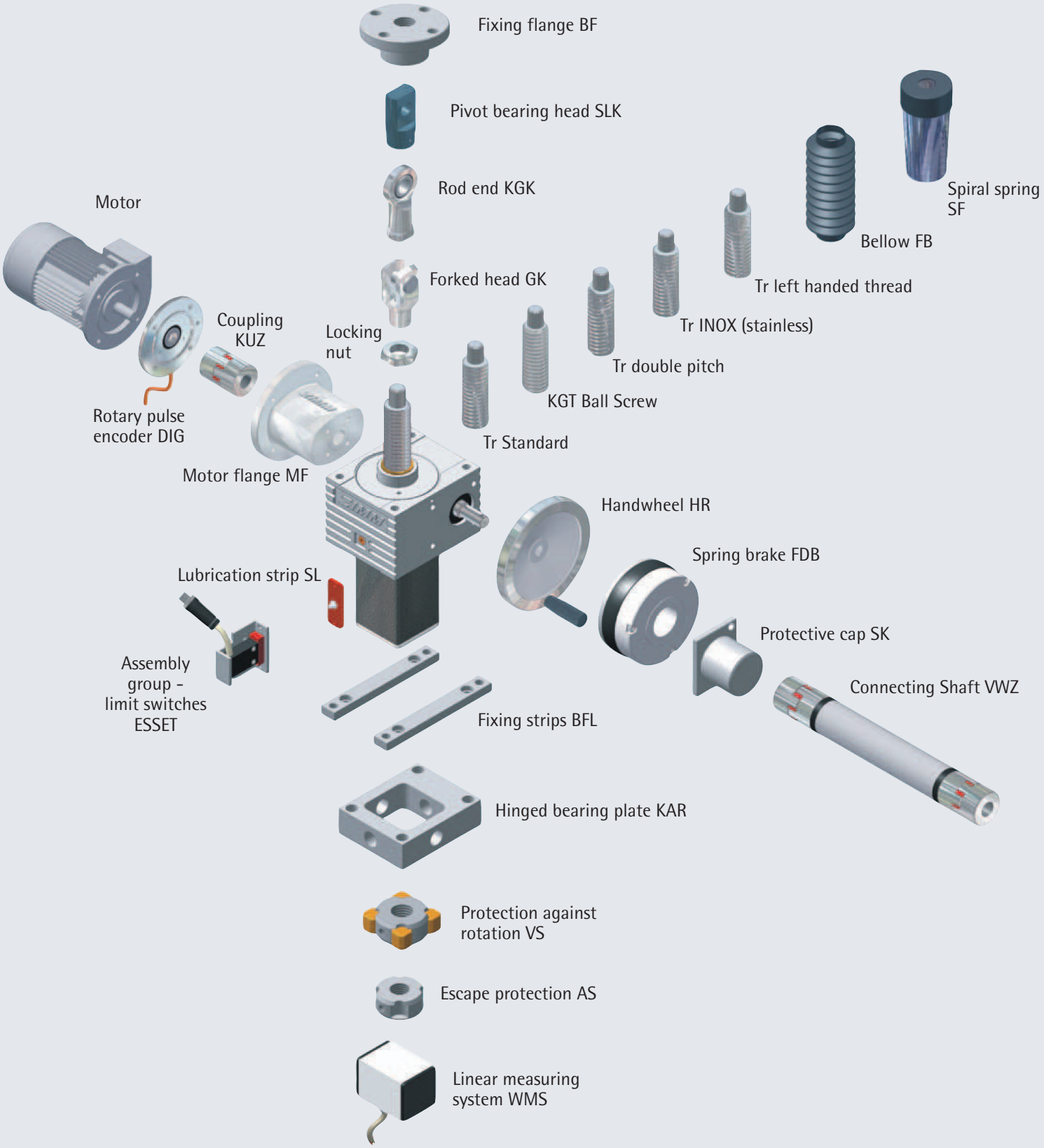
3.3 System Components, Standing Spindle S



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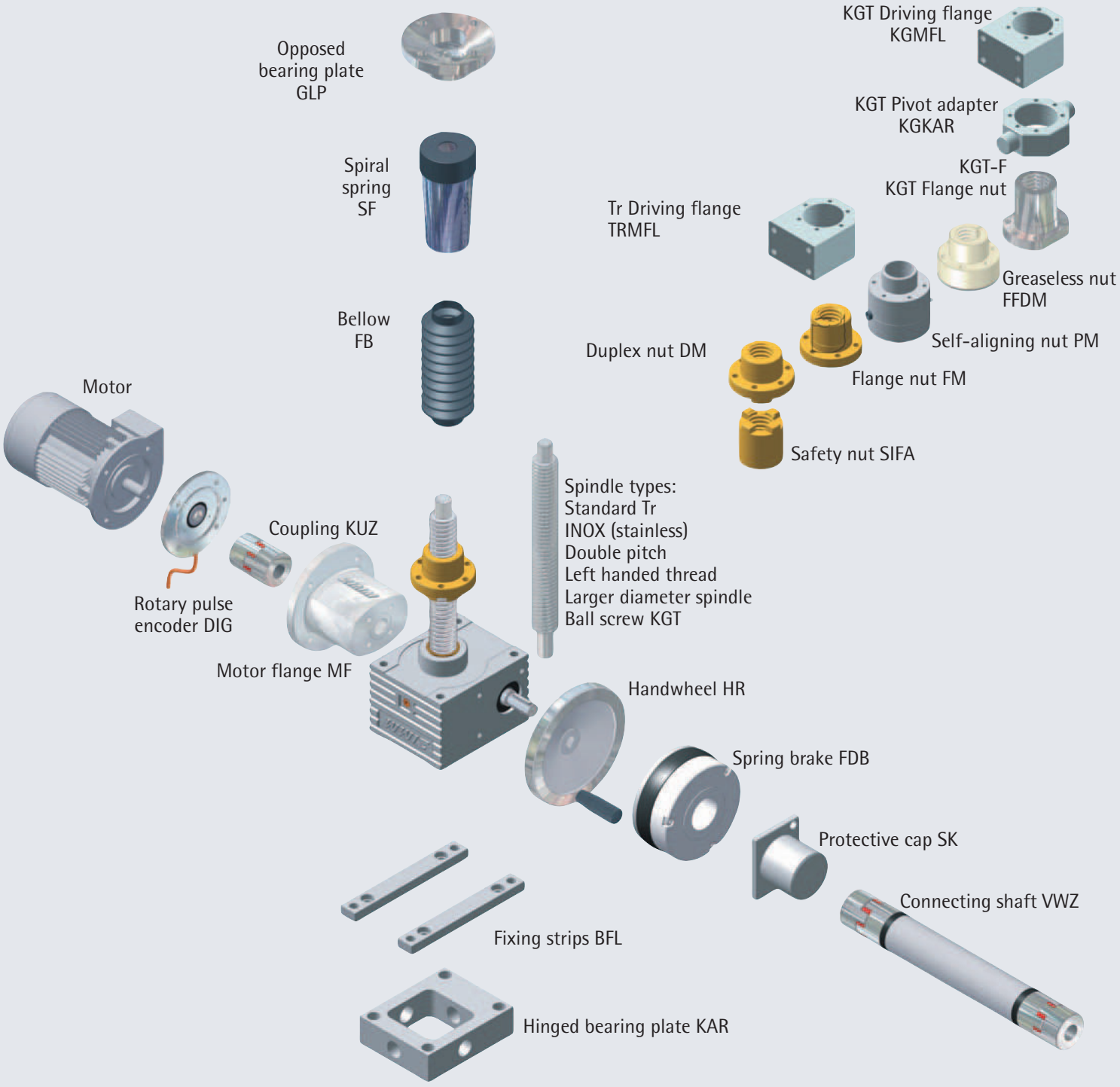
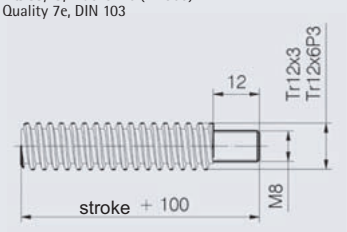
3.4 System Components, Rotating Spindle R



System Components

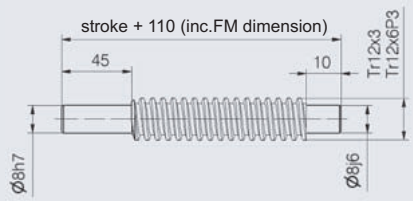
Trapezoid threaded screw SHZ-02-S-Tr

Fits SS/LS, Mat. CK15 (1.4305)
Quality 7e, DIN 103



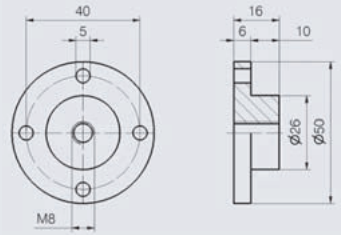
Trapezoid threaded screw SHZ-02-R-Tr

Fits SR/LR, Mat. CK15 (1.4305)
Quality 7e, DIN 103

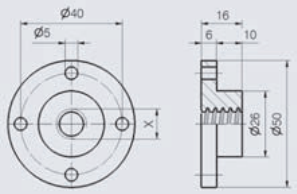


Fixing flange SHZ-02-BF

Fits SS/LS
Material alu anodized



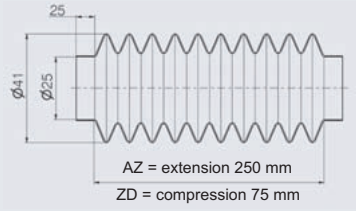
Flange nut SHZ-02-FM-L/SHZ-02-FM-S



SHZ-02-FM-L X=Tr12x3
SHZ-02-FM-S X=Tr12x6 P3
Mat.CuSnZnPb

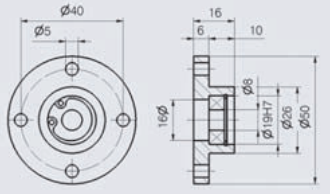
Bellow SHZ-02-FB-175

Material Molerit-TH 59



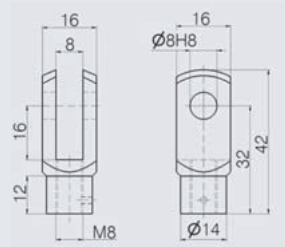
Attention: Spindle extension +60mm required

Opposed bearing plate SHZ-02-GLP

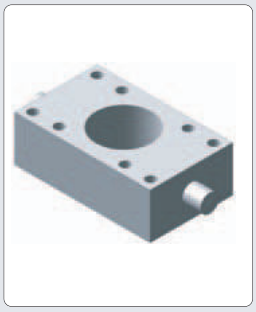


with bearing 698-2Z
Material Alu anodized

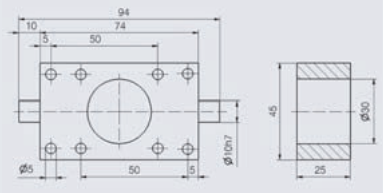
Forked head SHZ-02-GK



Material steel, galvanized, with bolts and locking key

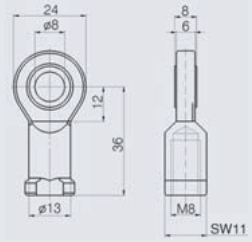


Hinged bearing plate SHZ-02-KAR



Material steel, galvanized

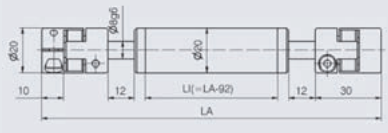
Rod end SHZ-02-KGK



Material steel/steel, galvanized

Connecting shaft SHZ-VBWX-20

Material alu/steel



Please define bore-ø
LA_{min}=132mm

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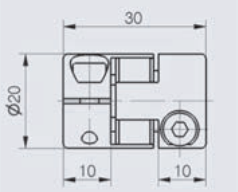
System Components

Flexible coupling KUZ-09-GS

Clamping collar coupling, Mat.: Alu



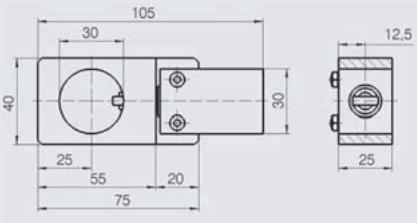
Ordering example: KUZ-09-GS-5 / 8 (d1 / d2)

Cover plate SHZ-02-AB

Is supplied with gearboxes
R version: 1 bearing cap with flange
1 cover plate

For sealing the box,
e.g. in the food industrie

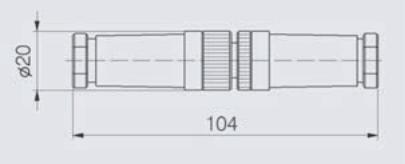
Limit switch set SHZ-02-ESSET



Attention: 2 sets per gearbox are reqired

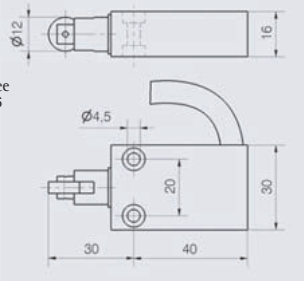
Plug set

Is supplied with limit switch ES



see chapter 14.1.6

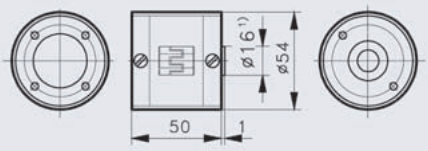
Limit switch ES



Notice: also see
chapter 14.1.6

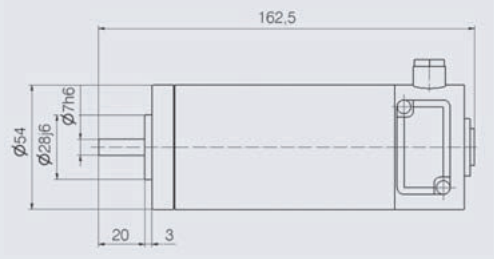
Universal motor flange SHZ-02-MOTF

Suited for both of our standard motors. Should other motors be used, only one ring inside the flange body must be used.



1 - for mounting on screw jack

D.C. magneto-electric motor



Rotary voltage motor on request

Speed 3000 U/min	Speed 3000 U/min
SHZ-GM-24V	SHZ-GM-180V
I_N=4A	I_N=0,5A
I_{max}=41A	I_{max}=5,5A
P_N=55W	P_N=55W
M_N=17,5Ncm	M_N=17,5Ncm
J=0,5Kgcm²	J=0,5Kgcm²
Cable connection PG11	Cable connection PG11
Protection class IP 44	Protection class IP 44
Weight 1,2 kg	Weight 1,2 kg

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Overview

14.4 + 14.5 Connecting Shafts, Couplings

14.4.1

Connecting Shaft VWZ
- Easy assembly – saving time and costs
- Radial assembly due to splited couplings
- Stepless adjustment due to clamping couplings
- Top design
- Low mass moment of inertia
- Lengths up to 6 meters without pedestal bearing

14.4.2

Pedestal Bearing STL
Used for intermediate bearing of very long dimensioned connecting shafts VWZ and GX

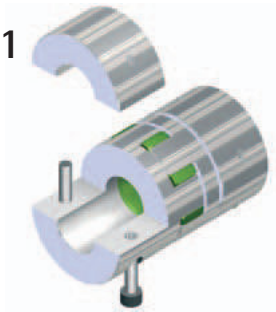
14.4.3

Precision Shaft Joints Extendable KGW
Torque transmission in case of axis offset

14.4.4

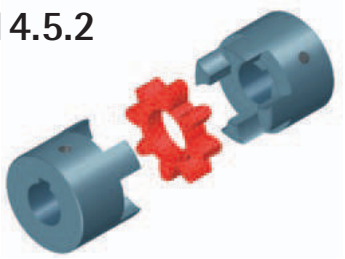
Connecting Shaft GX
Connecting shaft made of a steel tube

14.5.1



Clamp coupling KUZ-KK
Split coupling design

14.5.2



Standard coupling KUZ
With keyway and locking screw

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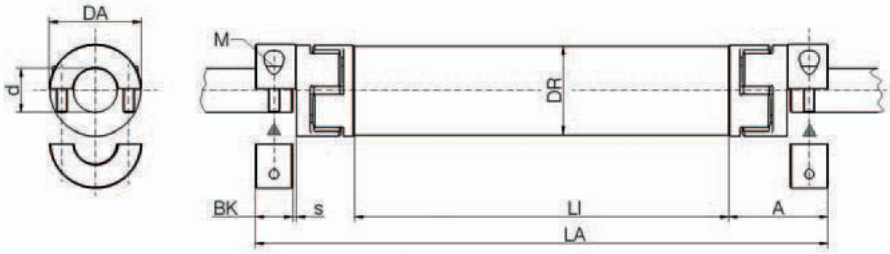

14.4.1 Connecting Shaft VWZ

Clamping hub with split coupling

- High concentric precision
- Easy radial assembly and disassembly
- High clamping strength
- Quick assembly
- No backlash
- Additional connection securing with pin and keyway not necessary.

Elastomer star

- Heat treatment preempts ageing.
- Permanently free of play and vibration absorption
- Electrical insulating properties
- Shore-hardness 64D
  color: ZIMM-green
  Temperature range: 0°C to +70°C,
  reduced from -20°C to +100°C

Size	DA	DR	BK*	s	LA min	A
VWZ-30	32	30	15	1,5	99	34
VWZ-40	42	40	17	1,5	133	46
VWZ-60	56	60	30	2	177	63
VWZ-60V	67	60	35	2	205	73
VWZ-80	82	80	40	2	249	84
VWZ-100	102	100	50	2	283	97
INOX stainless						
VWZ-40-I	42	40	17	1,5	133	46
VWZ-60-I	56	50	30	2	177	63
VWZ-60V-I	67	60	35	2	205	73

*BK=Clamping length of shaft extension

Size	Rated torque** [Nm]	max. torque** [Nm]	Inertia moment per coupling [10^{-3}kgm²]	Inertia moment tube/m [10^{-3}kgm²]	Coupling - type	M 10.9	Screw tightening torque [Nm]	Torsion stiffness per star C_{Tdyn} [Nm/rad]	Torsion stiffness tube/m C_{Tdyn} [Nm/rad]	Weight complete coupling [Kg]	Weight tube/m [Kg]
VWZ- 30	12	25	0,01	0,11	KUZ-KK-16	M 4	4	1650	1104	0,14	0,58
VWZ- 40	17	34	0,08	0,2	KUZ-KK-24	M 5	8	2540	2332	0,36	0,76
VWZ- 60	60	120	0,24	0,8	KUZ-KK-32	M 6	15	7940	8292	0,94	0,97
VWZ- 60V	160	320	0,46	0,8	KUZ-KK-35	M 8	35	13400	8292	1,42	0,97
VWZ- 80	325	650	2,4	3,0	KUZ-KK-45	M10	70	23700	29102	2,98	2,00
VWZ- 100	530	1060	6,0	5,8	KUZ-KK-60	M12	120	55400	58178	4,62	2,47
INOX stainless											
VWZ-40-I	17	34	0.10	0,53	KUZ-KK-24	M 5	7	2540	4002	1,30	1,99
VWZ-60-I	60	120	0,45	1,92	KUZ-KK-32	M 6	12	7940	17350	2,78	3,45
VWZ-60V-I	160	320	1,07	3,41	KUZ-KK-35	M 8	29	13400	30894	4,10	4,19

** max. transmittable torque of clamping hub - in dependence on the bore diameter:

	Ø 11	Ø 14	Ø 16	Ø 20	Ø 25	Ø 28	Ø 32	Ø 38	Ø 42	Ø 55
VWZ- 30	26	33	37							
VWZ- 40	41	52	60	74						
VWZ- 60	60	76	87	109	136	153	175			
VWZ- 60V			120	188	235	260	301			
VWZ- 80			325	406	508	568	650	772	854	
VWZ- 100					570	638	730	866	960	1250
INOX stainless										
VWZ-40-I	33	42	48	59						
VWZ-60-I	48	61	70	87	109	122	140			
VWZ-60V-I			96	150	188	208	241			

Standard
bore diameter "d" [mm]

VWZ-30:	11, 14, 16
VWZ-40:	11, 14, 16, 19, 20, 22
VWZ-60:	11, 14, 16, 19, 20, 22, 24, 25, 28, 30, 32
VWZ-60V:	12, 16, 18, 20, 22, 25, 32
VWZ-80:	16, 19, 20, 22, 24, 25, 28, 30, 32, 38, 42, 45
VWZ-100:	25, 28, 32, 38, 40, 42, 45, 48, 55

Ordering example:

Size - LA - outer length - Coupling bore

VWZ - 60 - LA 1800 - 20/25

Revolutions

n = 1500 min^{-1}

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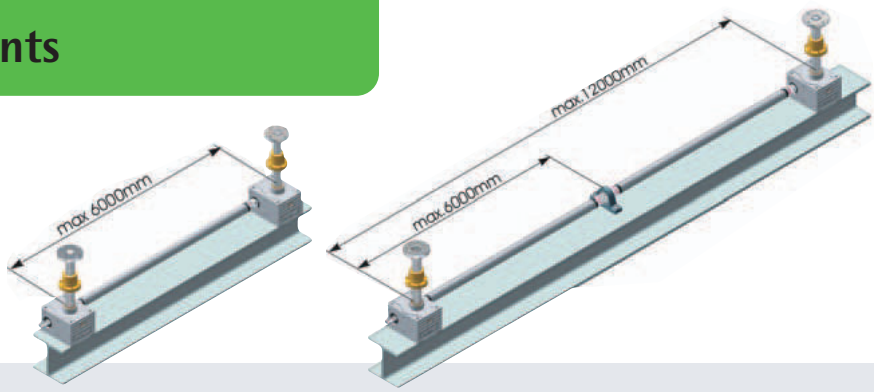
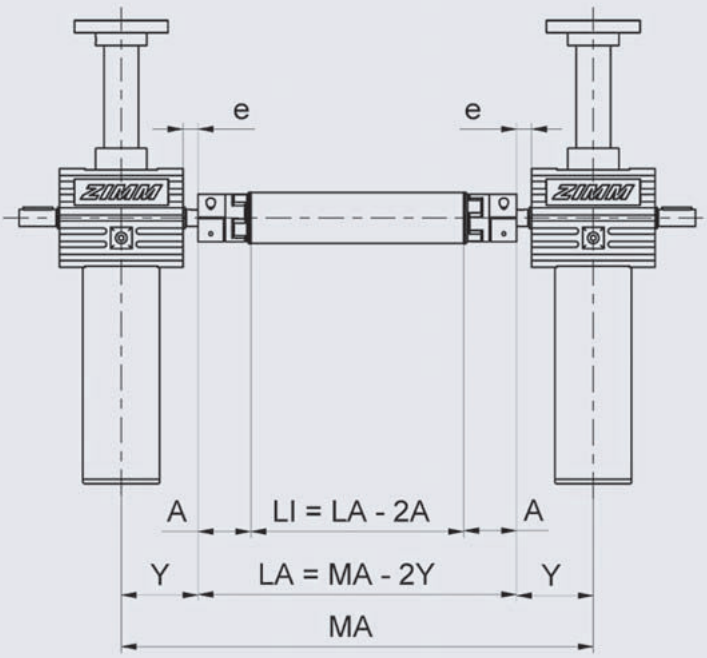


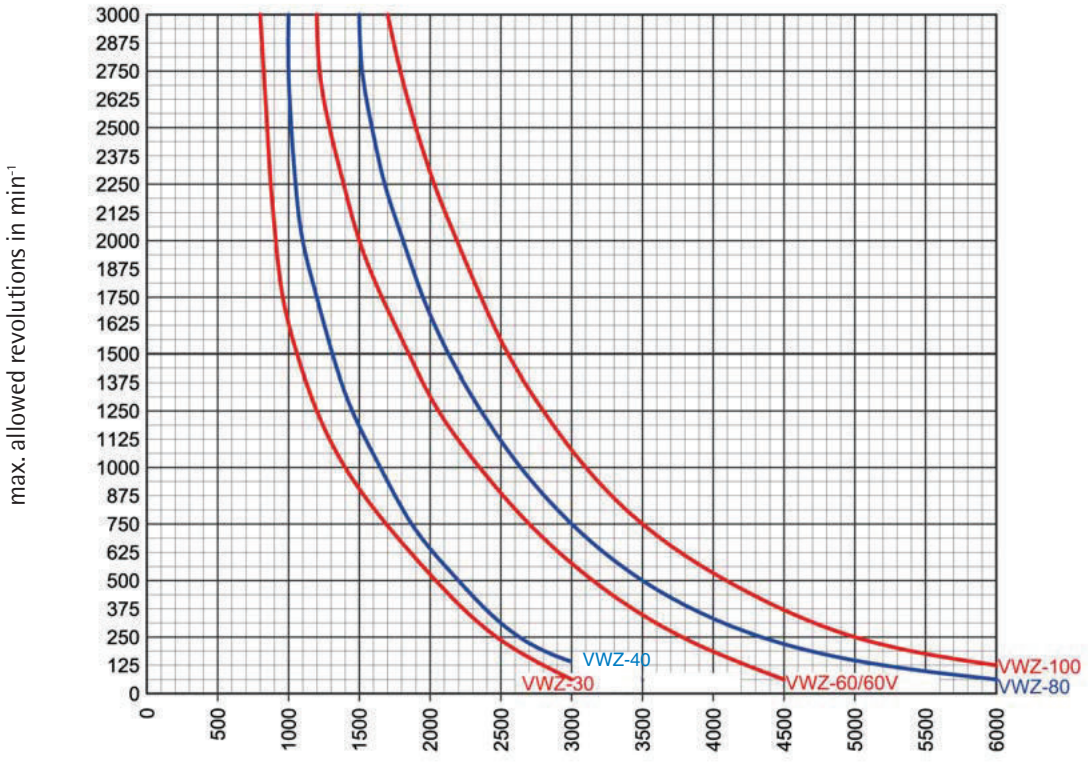
Length Determination



LI = inner length (tube length)
LA = outer length (incl. coupling)
MA = centre distance - gearboxes

Gearbox	Connecting Shaft	e	Y	A
MSZ- 5	VWZ- 30	9	45	34
MSZ- 5	VWZ- 40	7	43	46
MSZ- 5	VWZ- 60	2	38	63
MSZ- 10	VWZ- 30	12,5	55	34
MSZ- 10	VWZ- 40	10,5	53	46
MSZ- 10	VWZ- 60	2,5	45	63
MSZ- 25	VWZ- 40	28	80,5	46
MSZ- 25	VWZ- 60	15	67,5	63
MSZ- 25	VWZ- 80	5	57,5	84
MSZ- 50	VWZ- 60	17,5	90	63
MSZ- 50	VWZ-60V	12,5	85	73
MSZ- 50	VWZ- 80	7,5	80	84
MSZ-100	VWZ- 60	30	117,5	63
MSZ-100	VWZ-60V	25	112,5	73
MSZ-100	VWZ- 80	20	107,5	84
MSZ-150	VWZ- 60	30	132,5	63
MSZ-150	VWZ-60V	25	127,5	73
MSZ-150	VWZ- 80	20	122,5	84
MSZ-250	VWZ- 80	27,5	142,5	84
MSZ-250	VWZ-100	17,5	132,5	97
MSZ-350	VWZ- 80	27,5	162,5	84
MSZ-350	VWZ-100	17,5	152,5	97
MSZ-500	VWZ- 80	60	225	84
MSZ-500	VWZ-100	50	215	97
MSZ-650	VWZ-100	52,5	227,5	97

Revolutions / Length selection



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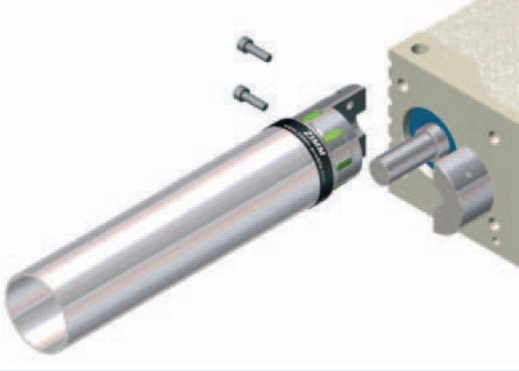


14.4.1 Connecting Shaft VWZ

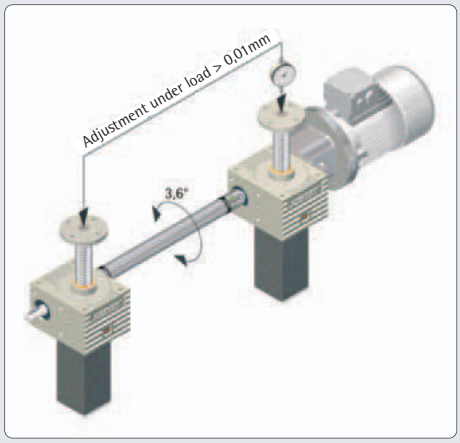
Mounting

Using split couplings the connecting shafts can be assembled after installation of the screw jack gearboxes. Mount the connection shaft onto the gearbox drive shaft and assemble the half coupling tightening the screws to the required torque (see table - no keyway necessary).

Set screw tightening torque acc. to table

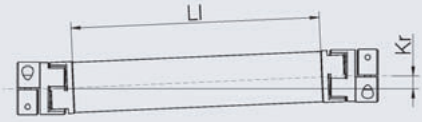
Height adjustment

Adjusting the height of the various screw jacks connected by VWZ connecting shafts is very quick and easy. Loosening one clamping hub and adjusting on one side allows very precise stepless movement.
For example: With the standard gear reduction this means one 360° rotation is equivalent to 1 mm stroke, e.g. 3,6° = 0,01 mm stroke. When setting under load, one lifting system with several screw jacks can be positioned very accurately.



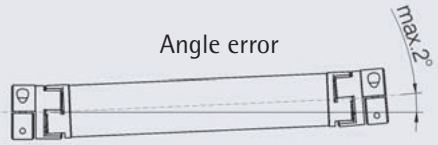
max. allowable axis offset

Offset - lateral



Kr max. 1,5 mm per 100 mm LI

Angle error



max. 2° (1° per coupling)

Offset axial

approx. +/- 1 to 2 mm

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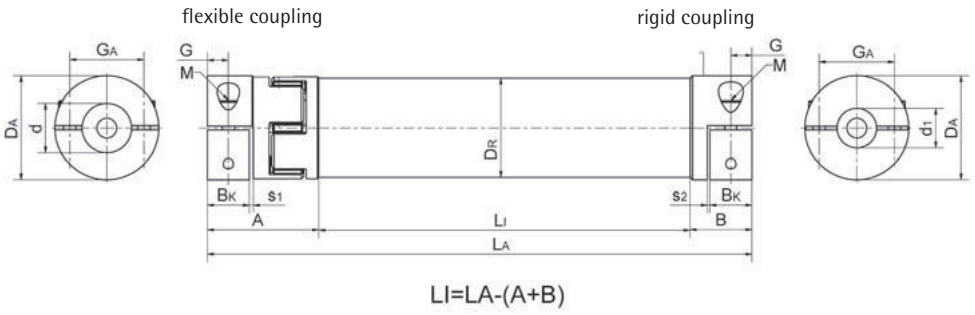
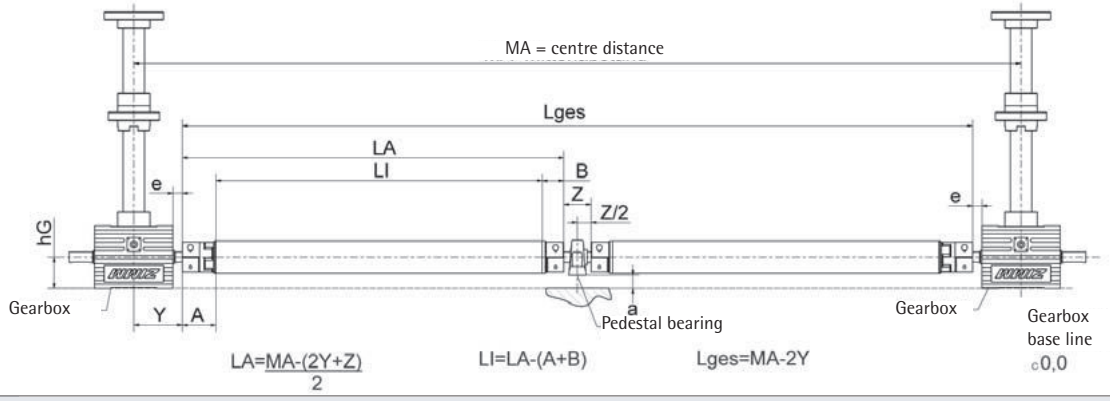


VWZ with Rigid Coupling for Use with Pedestal Bearing

In order to specify the correct shaft the method of assembly is very important. E.g. a larger diameter shaft which does not require additional support can be considerably lower cost than a smaller shaft requiring additional pedestal bearings and support fabrication.
For this version we use the rigid coupling, so that no tangential deviation in the pedestal bearing is possible.

Size	A	B	s1	s2	Bk	LI	LA min
VWZ- 30	34	20	2	1,2	15	LA-54	85
VWZ- 40	46	25	2	1,6	17	LA-71	112
VWZ- 60	63	40	2	2	30	LA-103	154
VWZ-60V	73	42	2	2	35	LA-115	175
VWZ- 80	84	55	2	2	40	LA-139	220
VWZ-100	97	65	2	2	50	LA-162	251

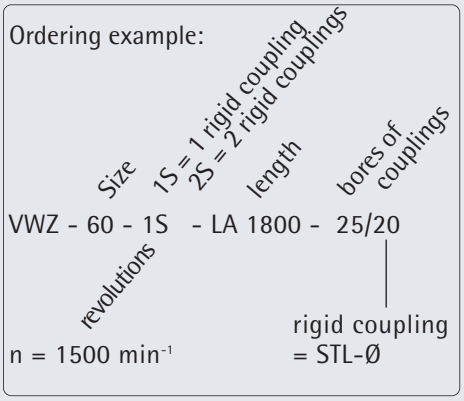
Gearbox – connecting shaft – pedestal bearing
Length specification and calculation



Gearbox	Connecting shaft	e	Y	A	B	Z	L_{WZ}	STL-Ø	hG	hL	a
MSZ- 5	VWZ-30	9	45	34	20	44	74	15	31	30,2	0,8
MSZ- 5	VWZ-40	7	43	46	25	42	76	20	31	33,3	-2,3
MSZ- 5	VWZ-60	2	38	63	40	42	102	20	31	33,3	-2,3
MSZ- 10	VWZ-30	12,5	55	34	20	44	74	15	37	30,2	6,8
MSZ- 10	VWZ-40	10,5	53	46	25	42	76	20	37	33,2	3,8
MSZ- 10	VWZ-60	2,5	45	63	40	42	102	20	37	33,2	3,8
MSZ- 25	VWZ-40	28	80,5	46	25	42	76	20	41	33,2	7,8
MSZ- 25	VWZ-60	15	67,5	63	40	42	102	20	41	33,2	7,8
MSZ- 25	VWZ-80	5	57,5	84	55	50	130	30	41	42,9	-1,9
MSZ- 50	VWZ-60	17,5	90	63	40	42	102	20	58	33,3	24,7
MSZ- 50	VWZ-60V	12,5	85	73	42	60	130	30	58	42,9	15,1
MSZ- 50	VWZ-80	7,5	80	84	55	50	130	30	58	42,9	15,1
MSZ-100	VWZ-60	30	117,5	63	40	42	102	20	80	33,3	46,7
MSZ-100	VWZ-60V	25	112,5	73	42	60	130	30	80	42,9	37,1
MSZ-100	VWZ-80	20	107,5	84	55	50	130	30	80	42,9	37,1
MSZ-150	VWZ-60	30	132,5	63	40	42	102	20	92,5	33,3	59,2
MSZ-150	VWZ-60V	25	127,5	73	42	60	130	30	92,5	42,9	49,6
MSZ-150	VWZ-80	20	122,5	84	55	50	130	30	92,5	42,9	49,6
MSZ-250	VWZ-80	32,5	142,5	84	55	50	130	30	110	42,9	67,1
MSZ-250	VWZ-100	22,5	132,5	97	65	70	170	50	110	57,2	52,8
MSZ-350	VWZ-80	27,5	162,5	84	55	50	130	30	117	42,9	74,1
MSZ-350	VWZ-100	17,5	152,5	97	65	70	170	50	117	57,2	59,8
MSZ-500	VWZ-80	60	225	84	55	50	130	30	133	42,9	90,1
MSZ-500	VWZ-100	50	215	97	65	70	170	50	133	57,2	75,8
MSZ-650	VWZ-100	52,5	227,5	97	65	70	170	50	148	57,2	90,8

To achieve concentricity an exact axial alignment of shaft and pedestal bearings in both axes is required.
Check the following parameters to optimise selection:
- Distance between gearboxes
- Revolutions
- Torque
- Pedestal bearing support: yes / no

Ordering example:



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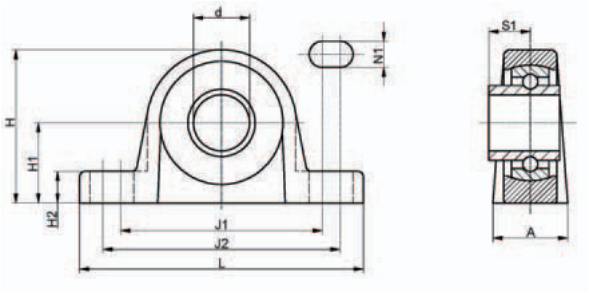


14.4.2 Pedestal Bearing STL for Connecting Shafts VWZ + GX

We use high-quality pedestal bearings in three housing designs::

- S = Standard version: black plastic
- W = White plastic version for food industry
- G = Cast iron version as alternative

Types "S" and "W" have the same design, type "G" has minimum dimension deviation.

Type "S" is our preferred version.

Temperature range: -30°C to +120°C

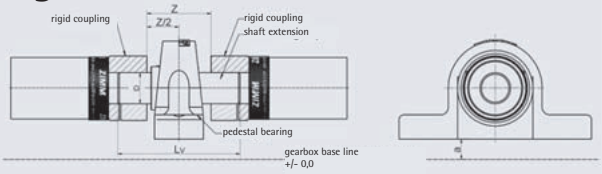
Order no.	Design	d	A	H	H1	H2	J1	J2	L	N1	S1
STL-15-G	cast iron	15	32	56	30,2	14	88	106	127	11,5	15,3
STL-20-S	plastic black	20	32	64	33,3	16	91,5	101,5	126	11,5	18,3
STL-20-W	plastic white	20	32	64	33,3	16	91,5	101,5	126	11,5	18,3
STL-20-G	cast iron	20	32	65	33,3	14	88	106	127	11,5	18,3
STL-30-S	plastic black	30	40	82	42,9	19	114	128	159	14	22,2
STL-30-W	plastic white	30	40	82	42,9	19	114	128	159	14	22,2
STL-30-G	cast iron	30	40	82,5	42,9	17	108	127	152	14	22,2
STL-40-S	plastic black	40	48	99	49,2	19	129	143	176	14	30,2
STL-40-W	plastic white	40	48	99	49,2	19	129	143	176	14	30,2
STL-40-G	cast iron	40	48	99	49,2	19	125	146	175	14	30,2
STL-50-G	cast iron	50	54	114,5	57,2	22	149	165	203	18	32,6

Shaft Extension WZ

Material: ground steel

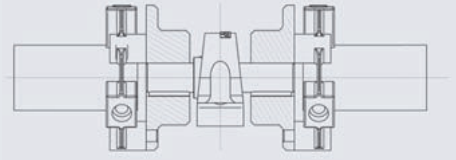
Order no.	d	Lwz
WZ-15/74-?P	15	74
WZ-20/76-?P	20	76
WZ-20/102-?P	20	102
WZ-30/130-?P	30	130
WZ-40/170-?P	40	170
WZ-50/170-?P	50	170

Utilization of pedestal bearing STL and shaft extension WZ



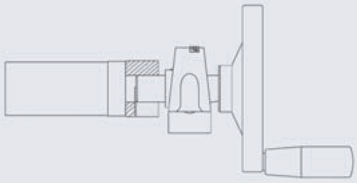
VWZ shaft with rigid coupling for pedestal bearing

Shaft extension without fitting key



GX shaft with pedestal bearing

Shaft extension with fitting key on both sides



Pedestal bearing with handwheel for VWZ shaft drive

Shaft extension with fitting key on one side

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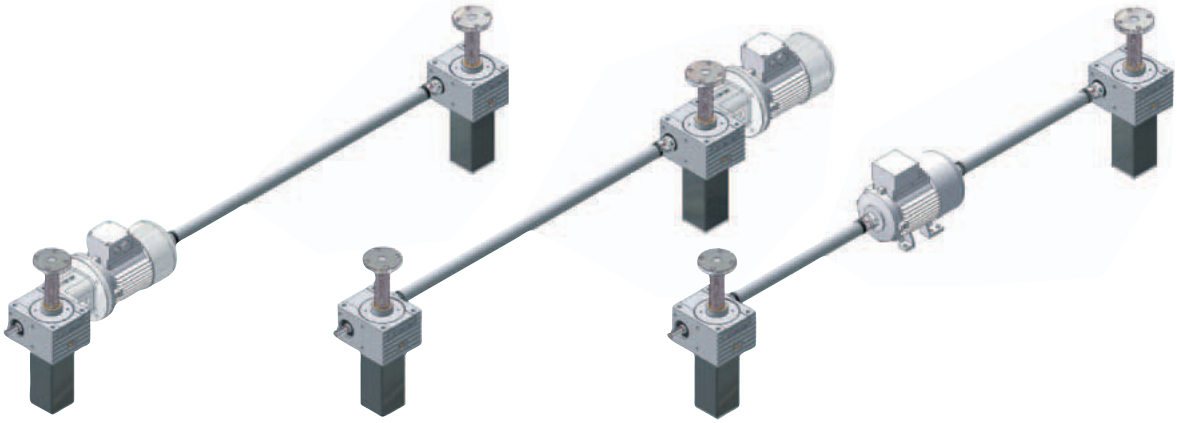

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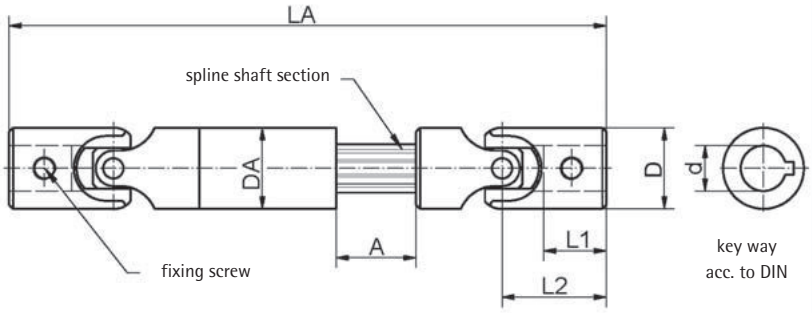


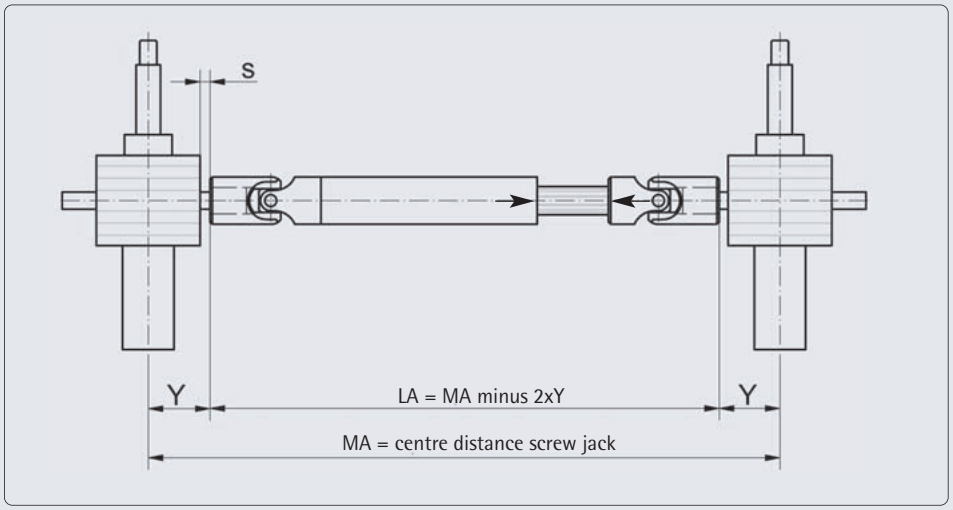
14.4.3 Precision Shaft Joints Extendable KGW

Size = Order no.	max. torque (1500 rpm) with deflection angle 0° to 10°	30°	Extension A*	L max. LA* ±1	L min.= LA - A	DA	D	d max. d H7	L1	L2	Spline shaft section DIN ISO 14
KGW-22	8,5 Nm	3,8 Nm	80	320	240	22	22	11	18	31	6x11x14
KGW-25	14 Nm	6,3 Nm	90	370	280	26	25	16	21	37	6x13x16
KGW-32	31 Nm	14 Nm	110	450	340	32	32	20	24	43	6x16x20
KGW-42	52 Nm	23 Nm	130	550	420	42	42	25	31	54	6x21x25
KGW-50	80 Nm	36 Nm	150	650	500	52	50	30	38	66	6x26x32

*other lengths on request

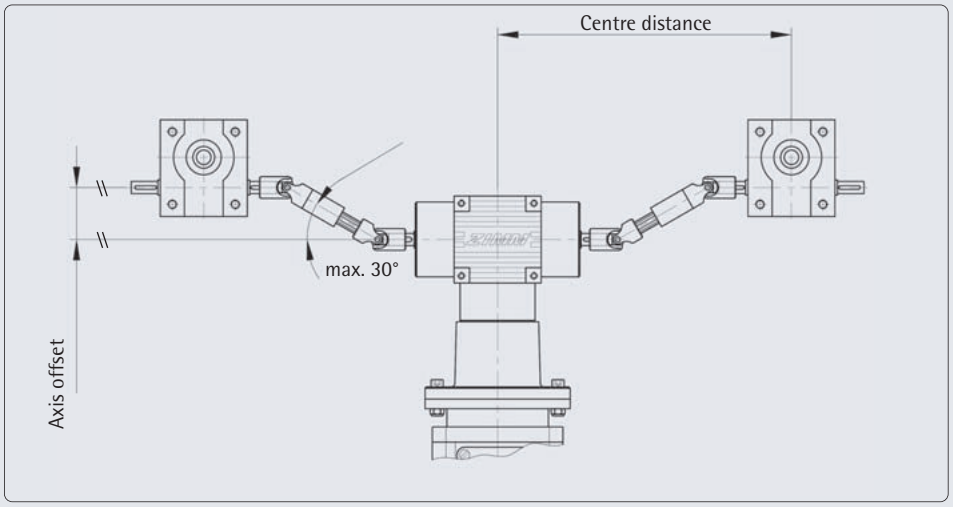
☞ **Usage advice:**

- When having higher torques and big deflection angles the operation noise will increase.
- As standard we deliver needle beared universal joints.
- When putting the KGW together it is absolutely necessary to pay attention to the marks (arrows).



Gearbox type	Joint shaft	s	Y
MSZ- 5	KGW-22	6	42
MSZ- 10	KGW-25	6,5	49
MSZ- 25	KGW-25	24	76,5
MSZ- 50	KGW-32	23,5	96
MSZ-100	KGW-40	29	116,5
MSZ-150	KGW-40	29	131,5
MSZ-250	KGW-50	29,5	144,5

Dimensions can deviate due to product changes.



Ordering example:

KGW-32 - LA-350 - 16/18

(Size / LA = outer length / Bore of couplings)

☞ Axis offset and centre distance MA must be defined with a drawing when ordering (max. angle 30°).

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14.4.4 Connecting Shaft GX

Size	Gearbox Size	Rated torque in Nm	Max. allw. torque in Nm	A	B	d2 from - to	d3	d4	L	L2	LC	M
GX 1	MSZ-5 / MSZ-10	10	25	18	7	11 - 25	56	57	LA - 2L2	24	25	M 6
GX 2	MSZ-25	20	60	24	8	14 - 38	85	88	LA - 2L2	28	32	M 8
GX 4	MSZ-50	50	125	25	8	16 - 45	100	100	LA - 2L2	30	32,5	M 8
GX 8	MSZ-100	100	280	30	10	20 - 55	120	125	LA - 2L2	42	45	M10
GX16	MSZ-150/MSZ-250	200	560	35	12	22 - 70	150	155	LA - 2L2	50	53	M12
GX25	MSZ-350/MSZ-500	315	875	40	14	20 - 85	170	175	LA - 2L2	55	58	M14
GX30	MSZ-500	500	1400	50	16	25 - 100	200	205	LA - 2L2	66	71	M16

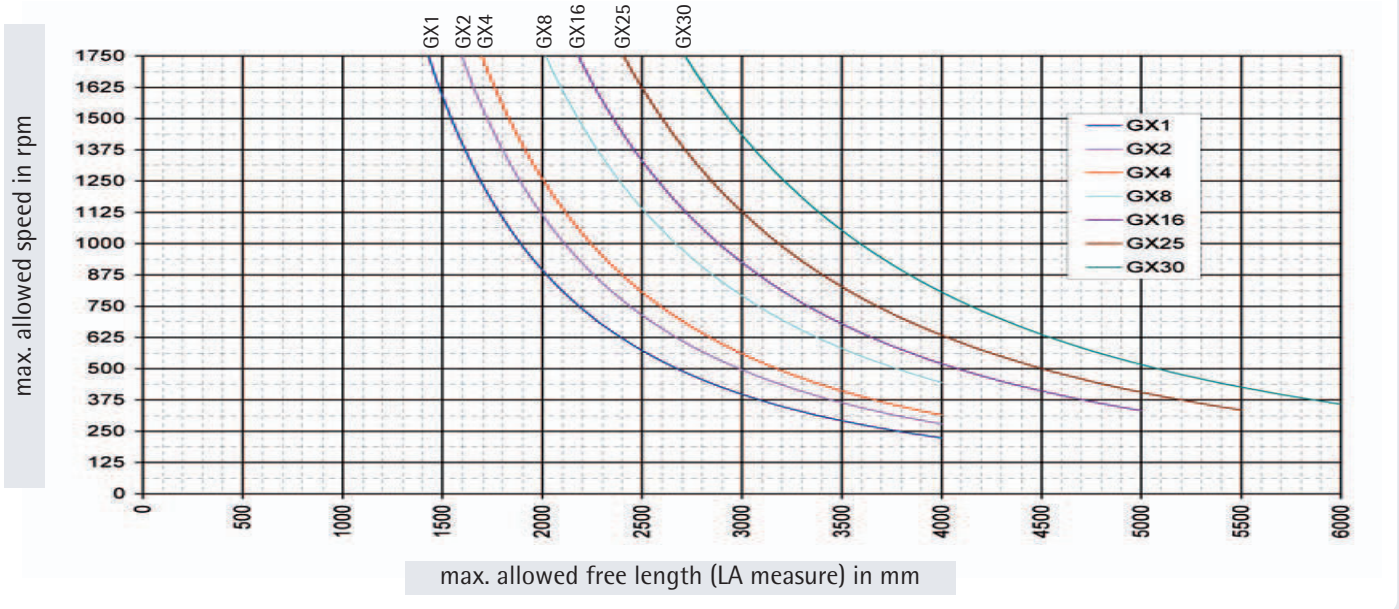
- Precision steel tubes acc. to DIN 2391
- Tube wall thickness: 1,5mm
- G1 = Weight - coupling
- G2 = Weight - tube (1m)
- d2 incl. keyway acc. to DIN 6885 and adjusting screw
- Environmental temperature max. 150° C
- Radial offset tolerance: 1°

Ordering example:

Size | LA = outer length | Bore of coupling

GX 2 - LA-1500 - 16/20

Speed / length selection



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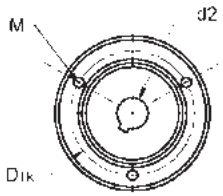
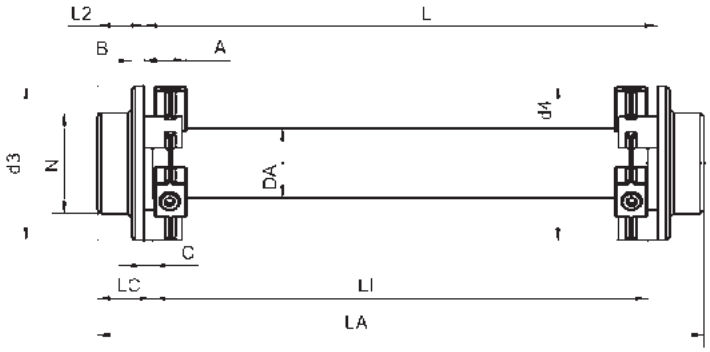
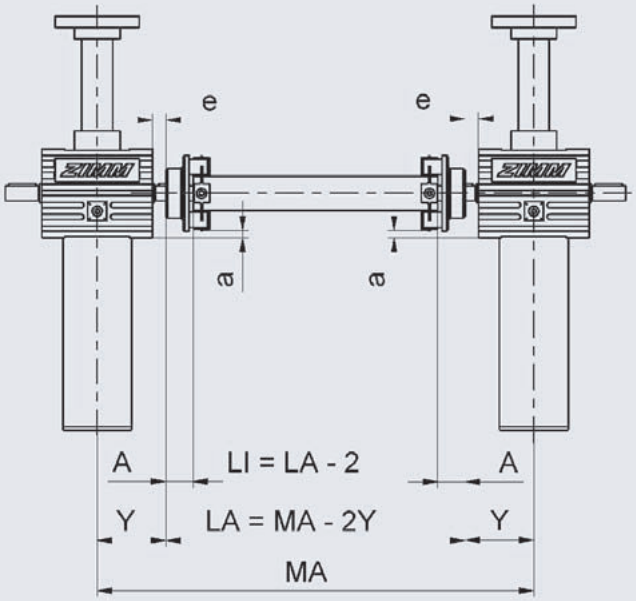




N	DA	C	DTk / ratio	Weight G1 (kg)	Weight G2 (kg)
36	30	1	44 / 2	0,47	1,05
55	40	4	68 / 2	1,06	1,42
65	45	2,5	80 / 3	2,31	1,61
80	60	3	100 / 3	3,55	2,16
100	70	3	125 / 3	6,16	2,53
115	85	3	140 / 3	9,50	3,09
140	100	5	165 / 3	15,21	3,60

Length determination

LI = inner length (tube length)
LA = outer length (incl. coupling)
MA = centre distance - gearboxes



Gearbox	GX type	e	Y	Distance a
MSZ- 5	GX 1	2	38	2,5
MSZ- 10	GX 1	3	46	8,5
MSZ- 25	GX 2	15	69,5	-1,5
MSZ- 50	GX 4	15	90	8
MSZ-100	GX 8	15	105,5	17,5
MSZ-150	GX16	7	112,5	15
MSZ-250	GX16	15	132,5	27,5
MSZ-350	GX25	10	147,5	29,5
MSZ-500	GX25	42,5	210	45,5
MSZ-500	GX30	31,5	199	45,5

Attention: Observe measure d4 to surface!

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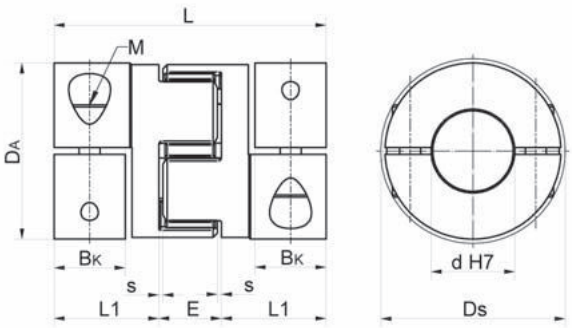
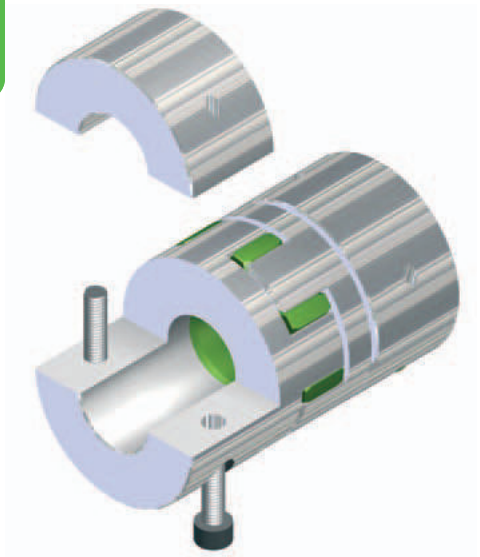




*BK=clamping length shaft extension

14.5.1 Clamp Coupling KUZ-KK

- Long design
- Split coupling for high concentricity (without keyway)

Material
- Coupling hubs: high-tensile aluminium
- Elastomer star: precision made, high wear and temperature resistant plastic

Design
Two coupling hubs manufactured with high concentricity.

- Elastomer star - standard: Shore hardness 64D , color: ZIMM-green

Temperature range
0°C to +70°C,
reduced from -20°C to +100°C

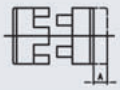
Standard bores "d" [mm]

KUZ-KK-16:	11, 14, 16
KUZ-KK-24:	11, 14, 16, 19, 20, 22
KUZ-KK-32:	11, 14, 16, 19, 20, 22, 24, 25, 28, 30, 32
KUZ-KK-35:	12, 16, 18, 20, 22, 25, 32
KUZ-KK-45:	16, 19, 20, 22, 24, 25, 28, 30, 32, 38, 42, 45
KUZ-KK-60:	25, 28, 32, 38, 40, 42, 45, 48, 55

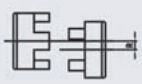
Size	Rated torque** [Nm]	max. torque* [Nm]	DA	Outer Ø with screw D_S	L	BK* fitting length	s	L1	E	M10.9	Screw tightening torque in Nm	Mass moment of inertia in 10^{-3} kgm²	Torsion stiffness C_{Tdny} [Nm/rad]	max. revolutions in min^{-1}
KUZ-KK-16	12	25	32	32	52	15	2	20	9	M 4	4	0,01	1650	19000
KUZ-KK-24	17	34	42	44,5	66	17	2	25	16	M 5	8	0,08	2540	19000
KUZ-KK-32	60	120	56	57	98	30	2	40	18	M 6	15	0,24	7940	14000
KUZ-KK-35	160	320	67	68	114	35	2	47	20	M 8	35	0,51	13400	11500
KUZ-KK-45	325	650	82	85	134	40	3	55	24	M10	70	2,4	23700	9500
KUZ-KK-60	530	1060	102	105	156	50	3	65	26	M12	120	6,0	55400	8000

Size	Weight coupling [kg]	max. axial offset in mm (axial)	max. axial offset in mm (lateral)	max. angle error in grade (angular)
KUZ-KK-16	0,05	±1	0,08	1
KUZ-KK-24	0,15	±2	0,08	1
KUZ-KK-32	0,35	±2	0,10	1
KUZ-KK-35	0,60	±2	0,15	1
KUZ-KK-45	1,10	±2	0,12	1
KUZ-KK-60	1,70	±2	0,14	1

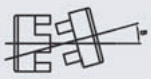
1. Offset - axial



2. Offset - lateral



3. Angle error - angular



** max. transmittable torque of clamping hub - in dependence on the bore diameter:

	Ø 11	Ø 14	Ø 16	Ø 20	Ø 25	Ø 28	Ø 32	Ø 38	Ø 42	Ø 55
KUZ-KK-16	26	33	37							
KUZ-KK-24	41	52	60	74						
KUZ-KK-32	60	76	87	109	136	153	175			
KUZ-KK-35			120	188	235	260	301			
KUZ-KK-45			325	406	508	568	650	772	854	
KUZ-KK-60					570	638	730	866	960	1250

Ordering example:

KUZ-KK-32 - 20/24

Size — Coupling bores

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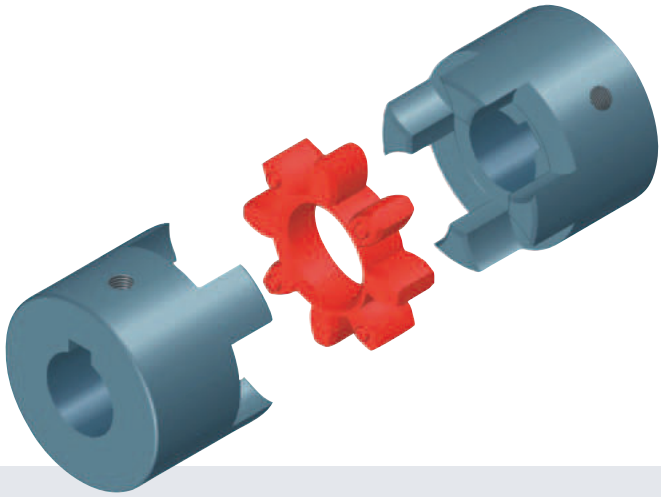


14.5.2 Standard Coupling KUZ

Standard coupling for general use with keyway and locking screw.

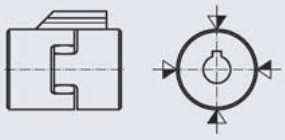
Material - coupling halves
Cast iron GG, sinterized steel, aluminium, acc. to table

Material - coupling star
Polyurethane, Shore hardness 98 A

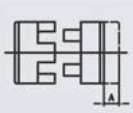
Ordering example:

KUZ-24 - 20/24
(Size / Bore of couplings)

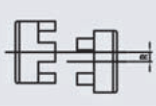
Possible assembly errors



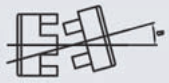
Assembly advice:
Check angle and radial offset in two levels with straight-edge



Axial displacement A
axial



Offset R
lateral



Angle error β
angular

Size	Twist angle with max. torque [grade]	Torsion stiffness C_{Tdyn} [Nm / rad]	Relative absorption	Resonance factor	max. torque [Nm]	Shore hardness star	max. torque [RPM]	allowable assembly error A	R	β	E	L
KUZ-09	-	-	0,7	9	6	92A	28000	0,8	0,13	1,0°	-	30
KUZ-14	-	-	0,7	9	2,9	80A	20000	0,75	0,4	0,5°	-	44
KUZ-19	3,5°±0,5	-	0,7	9	4,8	80A	14000	0,75	0,4	0,5°	-	51
KUZ-24	3,5°±0,5	4200	0,7	9	34	98A	14000	1,2	0,2	0,4°	-	66
KUZ-28	3,5°±0,5	4875	0,7	9	120	98A	10600	1,4	0,22	0,9°	30	78
KUZ-38	4,0°±0,5	11535	0,7	9	320	98A	8500	1,5	1,25	0,9°	38	90
KUZ-45	4,5°±0,5	31355	0,65	10	650	98A	7100	1,8	1,28	1,1°	40	114
KUZ-55	3,5°±0,5	39900	0,7	9	910	98A	6000	2	1,32	1,1°	46	126

Coupling star for sizes KUZ09 and KUZ19 only available without drillings.

Measure the coupling so that the permissible coupling load is never exceeded in any operating state.

Please turn over! ☞

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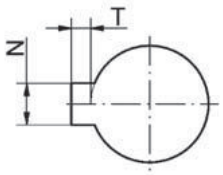
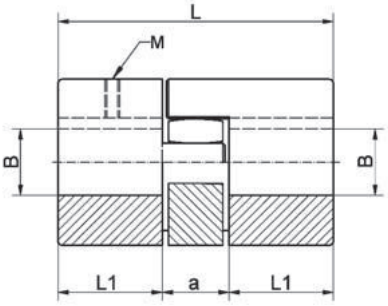


Keyway
DIN 6885/1-P9
Drilling U = not drilled



14.5.2 Standard Coupling KUZ

Order no.	Max. torque [Nm]	Max. torque [min^{-1}]	Max. offset [mm]	Max. angle error [grade]	Max. twist angle [grade]	D	L1	a	M	B ISO H7	L	N_{P9}	$T^{+0,2}$	Material	Weight drilled in kg
KUZ-09-05	6	28000	0,08	0,9	-	20	10	10	M4	5	30	-	-	AL-H	0,05
KUZ-09-06									M4	6		-	-		
KUZ-09-07									M4	7		-	-		
KUZ-09-08									M4	8		-	-		
KUZ-09- U									-	-		-	-		
KUZ-14-09	2,9	20000	0,4	1,5	-	27,5	16	12	M3	9	44	3	1,4	Sinterized steel / Cast iron GG	0,14
KUZ-14-11									M4	11		4	1,8		
KUZ-14-14									M5	14		5	2,3		
KUZ-14- U (pre-drilled Ø 6,3)								-	-		-	-			
KUZ-19-11	4,8	14000	0,35	1	3,5±0,5	34,5	19	13	M4	11	51	4	1,8		0,027
KUZ-19-14									M5	14		5	2,3		
KUZ-19-16									M5	16		5	2,3		
KUZ-19-19									M6	19		6	2,8		
KUZ-19- U (pre-drilled Ø 6,3)								-	-		-	-			
KUZ-24-11	34	14000	0,2	0,9	3,5±0,5	40	25	16	M5	11	66	4	1,8		0,34
KUZ-24-14									M5	14		5	2,3		
KUZ-24-16									M5	16		5	2,3		
KUZ-24-19									M5	19		6	2,8		
KUZ-24-20									M5	20		6	2,8		
KUZ-24-24									M6	24		8	3,3		
KUZ-24- U									-	-		-	-		
KUZ-28-16	120	10600	0,22	0,9	3,5±0,5	55	30	18	M5	16	78	5	2,3		0,9
KUZ-28-19									M5	19		6	2,8		
KUZ-28-20									M5	20		6	2,8		
KUZ-28-24									M5	24		8	3,3		
KUZ-28-25									M5	25		8	3,3		
KUZ-28-28									M5	28		8	3,3		
KUZ-28- U									-	-		-	-		
KUZ-38-25	320	8500	0,25	0,9	4±0,5	65	35	20	M6	25	90	8	3,3	Cast iron GG	1,5
KUZ-38-28									M6	28		8	3,3		
KUZ-38-32									M6	32		10	3,3		
KUZ-38-38									M6	38		10	3,3		
KUZ-38- U									-	-		-	-		
KUZ-45-25	650	7100	0,28	1	4,5±0,5	80	45	24	M8	25	114	10	3,3		2,35
KUZ-45-32									M8	32		10	3,3		
KUZ-45-38									M8	38		10	3,3		
KUZ-45-42									M8	42		12	3,3		
KUZ-45-45									M8	45		14	3,8		
KUZ-45- U									-	-		-	-		
KUZ-55-42	910	6000	0,32	1	3,5±0,5	95	50	26	M8	42	126	12	3,3		3,57
KUZ-55-48									M8	48		14	3,8		
KUZ-55-55									M8	55		16	4,3		
KUZ-55- U									-	-		-	-		

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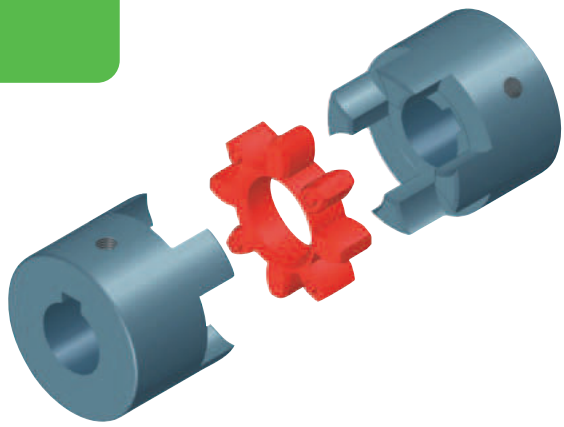
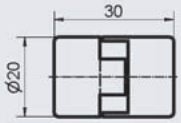
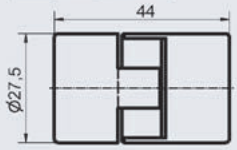
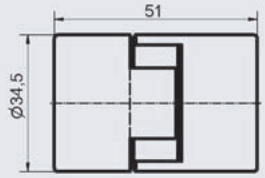
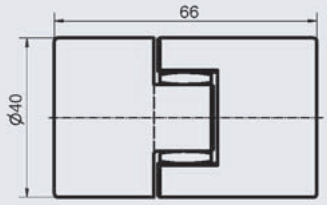


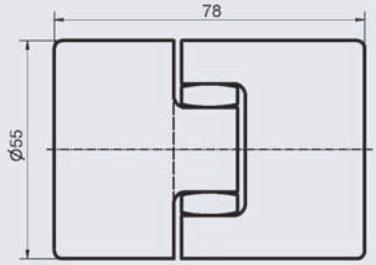
KUZ09	5, 6, 7, 8, U
KUZ14	9, 11, 14, U (pre-drilled Ø 6,3)
KUZ19	11, 14, 16, 19, U (pre-drilled Ø 6,3)
KUZ24	11, 14, 16, 19, 20, 24, U
KUZ28	16, 19, 20, 24, 25, 28, U
KUZ38	25, 28, 32, 38, U
KUZ45	25, 32, 38, 42, 45, U
KUZ55	42, 48, 55, U

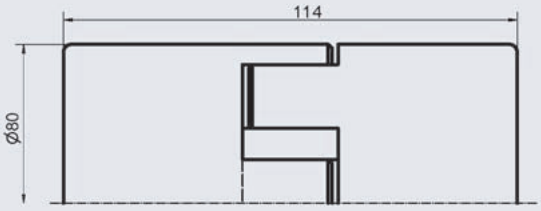


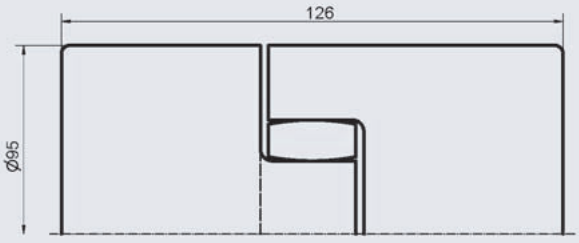






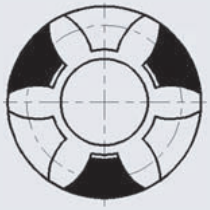


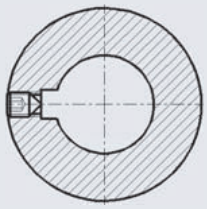




Bore diameter, ISO H7
U = not drilled

Elastic star
KUZ09 / 92 Shore A, KUZ14 / 80 Shore A,
KUZ24 to KUZ55 / 98 Shore A,
slit couplings, KUZ-GS09 to KUZ-GS26 /
98 Shore A





- Pre-drilled
- Grooved DIN 6885/1-P9
- With adjusting screw

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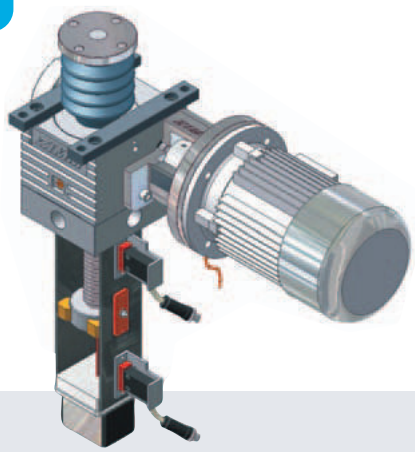


S

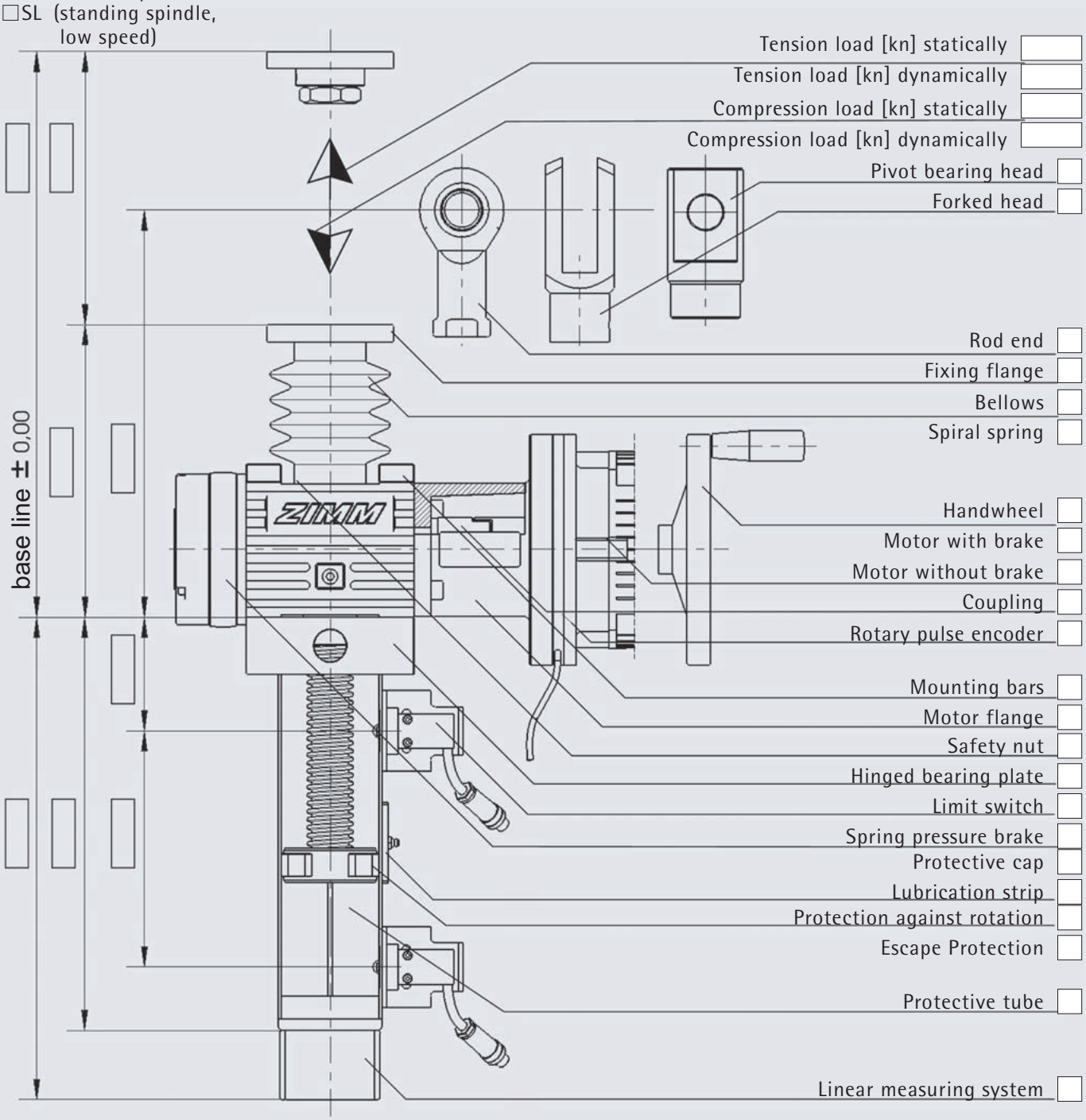
4.2 Checklist - Page 3 - Accessories S

(also see overview chapter 3.3)

Execution:

☐SN (standing spindle, normal speed)

☐SL (standing spindle, low speed)



Tension load [kn] statically ☐

Tension load [kn] dynamically ☐

Compression load [kn] statically ☐

Compression load [kn] dynamically ☐

Pivot bearing head ☐

Forked head ☐

Rod end ☐

Fixing flange ☐

Bellows ☐

Spiral spring ☐

Handwheel ☐

Motor with brake ☐

Motor without brake ☐

Coupling ☐

Rotary pulse encoder ☐

Mounting bars ☐

Motor flange ☐

Safety nut ☐

Hinged bearing plate ☐

Limit switch ☐

Spring pressure brake ☐

Protective cap ☐

Lubrication strip ☐

Protection against rotation ☐

Escape Protection ☐

Protective tube ☐

Linear measuring system ☐

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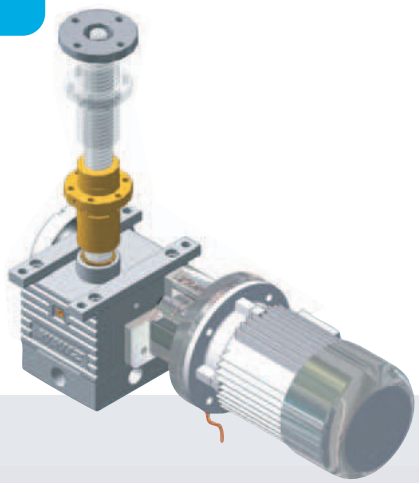
R



4.2 Checklist - Page 4 - Accessories R

(also see overview chapter 3.4)

Execution:

☐RN (rotating spindle, normal speed)

☐RL (rotating spindle, low speed)

Tension load [kn] statically ☐

Tension load [kn] dynamically ☐

Compression load [kn] statically ☐

Compression load [kn] dynamically ☐

Opposed bearing plate ☐

Bellows ☐

Flat spiral spring covering ☐

on top ☐

on bottom ☐

Duplex nut DM-1 ☐

Flange nut FM (trapezoid) ☐

Flange nut KGT-F ☐

Self-aligning nut PM-1 ☐

Greaseless nut FFDM ☐

Driving flange TRMFL ☐

Safety nut ☐

Tension ☐ Compression ☐

Wear control ☐

Mounting bars ☐

Coupling ☐

base line ± 0,00

Handwheel ☐

Motor ☐

Motor with brake ☐

Rotary pulse encoder ☐

Motor flange ☐

Hinged bearing plate ☐

Spring pressure brake ☐

Protective cap ☐

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