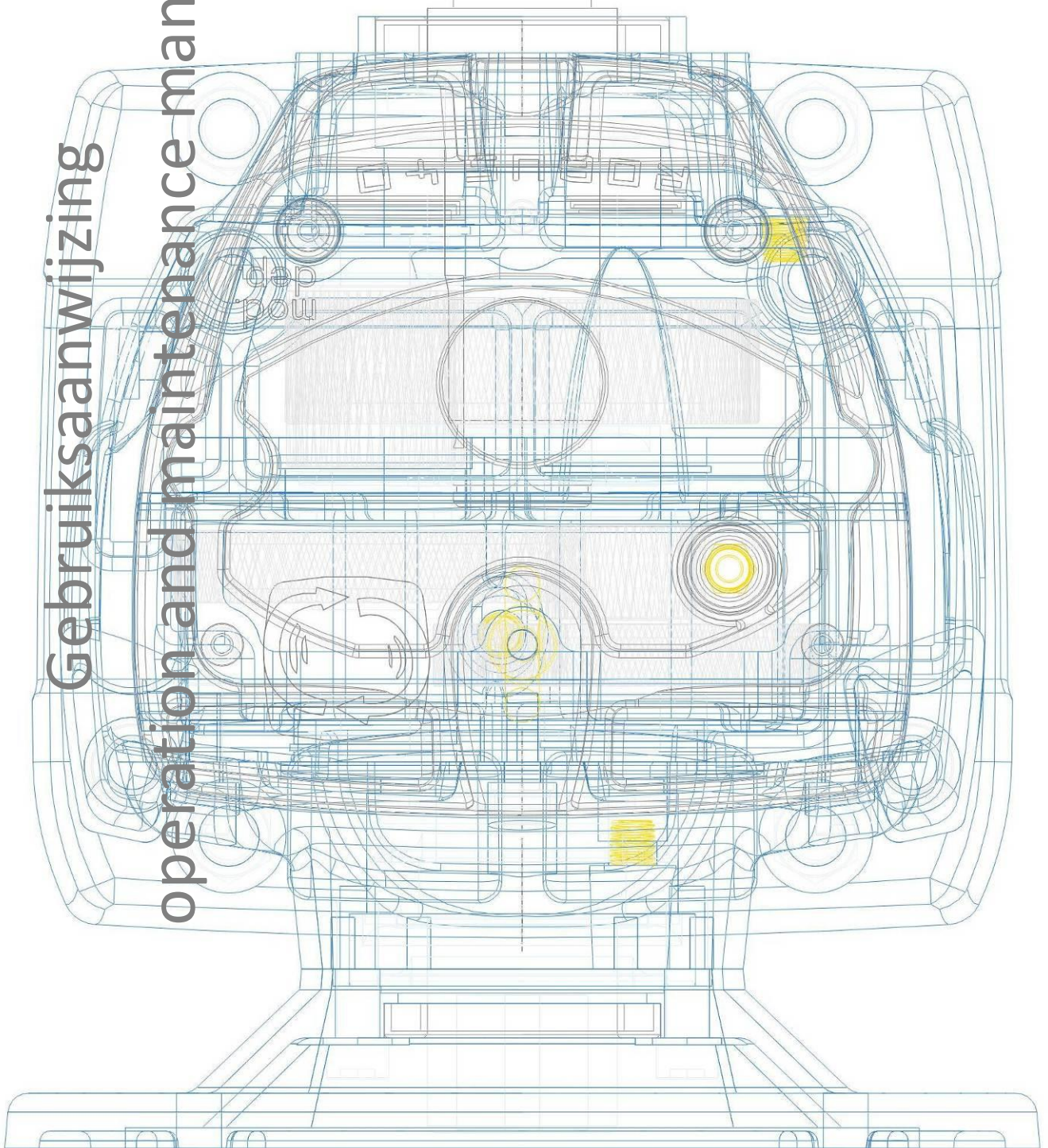


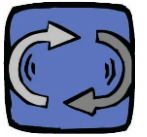
ROBUS

Co-axiale tandwielkast
helical in-line gearboxes

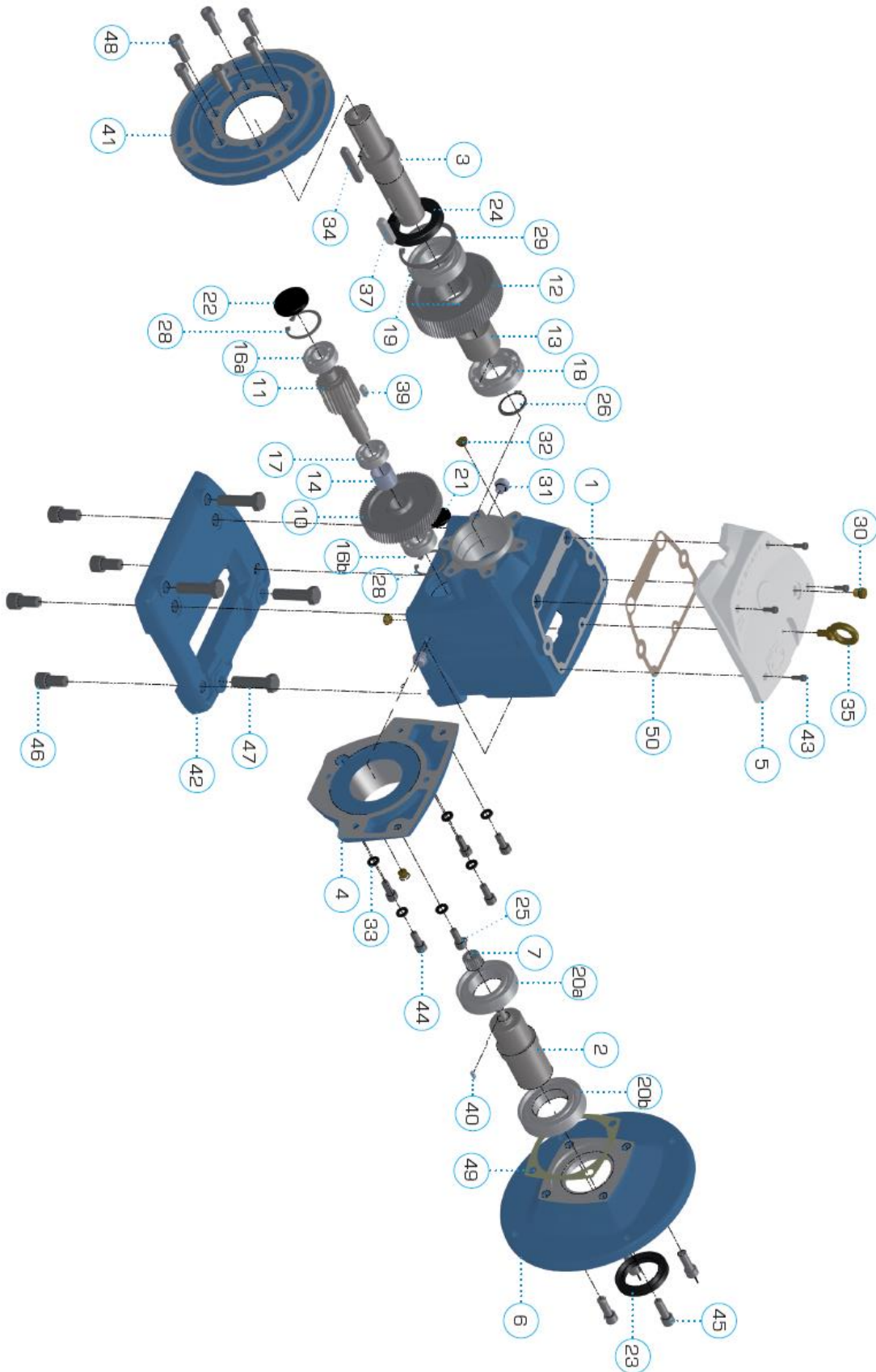


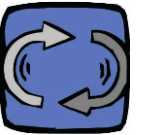
Gebruiksaanwijzing
operation and maintenance manual





ONDERDELENLIJST (25-60 2 TRAPS) – COMPONENTS LIST (25-60 2 STAGES)



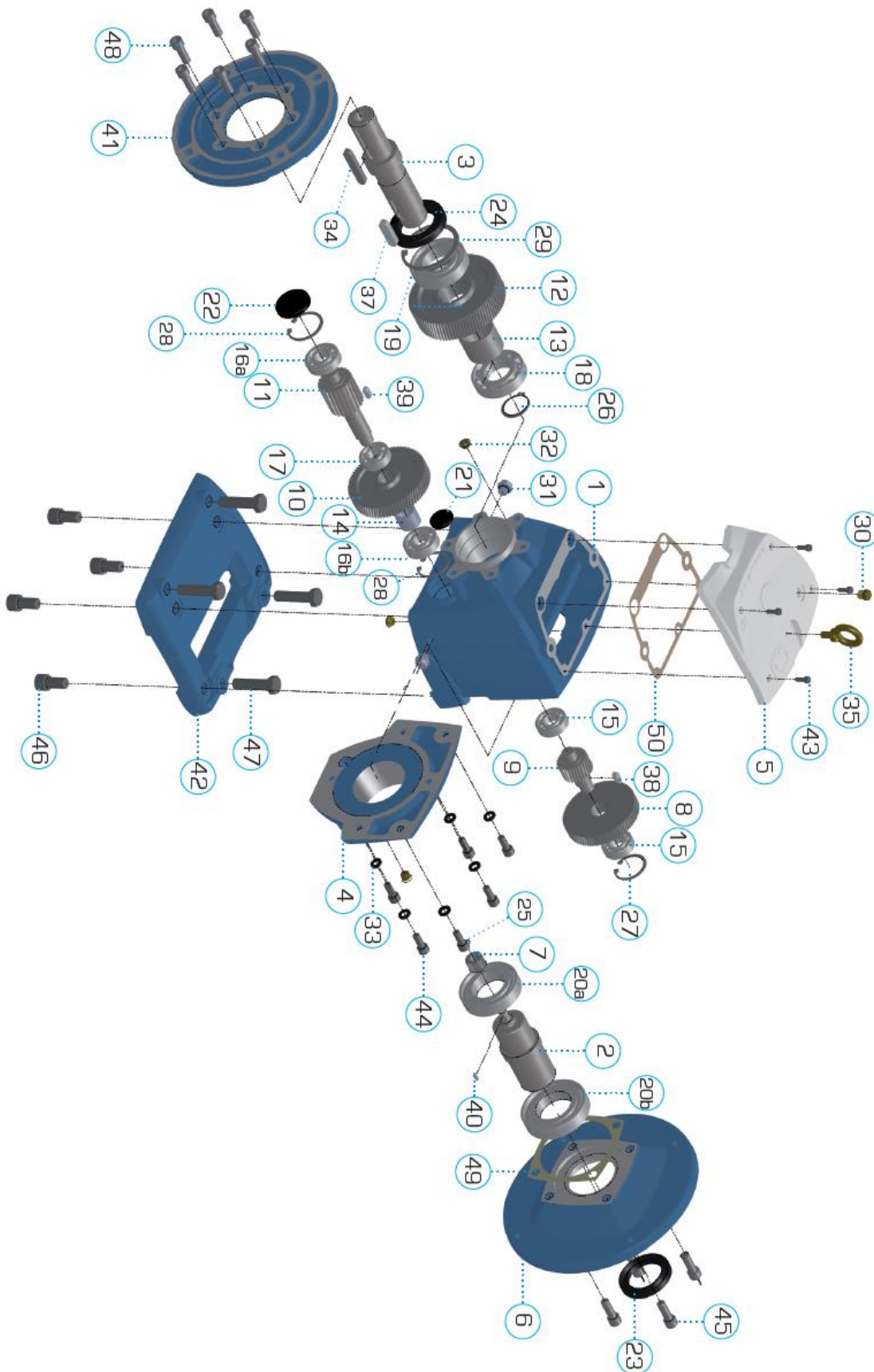


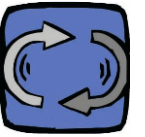
LIST OF COMPONENTS ROBUS 25-60 2 (2 REDUCTION STAGES)

Item	code	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty
1	HOU	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1
2	ISH	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1
3	OSH	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1
		D25xL50		D30xL60		D40xL80		D50xL100		D60xL120		D70xL140	
		D30xL60		D35xL70		D40xL80		D50xL100		D60xL120		D70xL140	
4	ICV	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1
5	TCV	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1
6	JFL	input flange	1	input flange	1	input flange	1	input flange	1	input flange	1	input flange	1
		69B5		71		80		90		100/112		132	
		71B5		80		90		100/112		132		180	
		80B5		90		100/112		132		180		200	
		90B5		100/112		132		180		200			
7	P1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1
10	G2	gear 1	1	gear 1	1	gear 1	1	gear 1	1	gear 1	1	gear 1	1
11	P3	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1
12	G3	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1
13	SP	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
14	SP	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
16a	BEA	bearing 7202	1	bearing 7302	1	bearing 7304	1	bearing 7306	1	bearing 7307	1	bearing 7307	1
16b	BEA	bearing 7202	1	bearing 7203	1	bearing 7204	1	bearing 7306	1	bearing 7307	1	bearing 7307	1
17	BEA	bearing 6003	1	bearing 6004	1	bearing 6205	1	bearing 6207	1	bearing 6210	1	bearing 6208	1
18	BEA	bearing 6205	1	bearing 6206	1	bearing 6207	1	bearing 6210	1	bearing 6212	1	bearing 6212	1
19	BEA	bearing 6206ZZ	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6210ZZ	1	bearing 6212ZZ	1	bearing 6215-zz	1
20a	BEA	bearing 6206ZZ	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6210ZZ	1	bearing 6212ZZ	1	bearing 6215-zz	1
20b	BEA	bearing 6206ZZ	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6210ZZ	1	bearing 6212ZZ	1	bearing 6215-zz	1
20	COV	plug seal D25	2	bearing 6009ZZ	2	bearing 6009ZZ	2	plug seal D35	1	plug seal D42	1	plug seal D52	1
21	COV	plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D62	1	plug seal D72	1	plug seal D80	1
22	COV	plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D62	1	plug seal D72	1	plug seal D80	1
23	OS	oil seal 40x55x8	1	oil seal 45x60x9	1	oil seal 45x60x9	1	oil seal 55x80x10	1	oil seal 55x80x10	1	oil seal 65x90x12	1
24	OS	oil seal 62x35x11	1	oil seal 40x72x10	1	oil seal 50x80x12	1	oil seal 55x85x12	1	oil seal 65x120x15	1	oil seal 72x140x18	1
25	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
26	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
27	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
28	SNR	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2
29	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
30	BPL	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1
31	FPL	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6
32	LPL	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1
33	WSH	washer	4	washer	4	washer	4	washer	4	washer	4	washer	4
34	KEY	key	1	key	1	key	1	key	1	key	1	key	1
35	KEY	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1
37	KEY	key	1	key	1	key	1	key	1	key	1	key	1
39	KEY	key	1	key	1	key	1	key	1	key	1	key	1
40	KEY	key	1	key	1	key	1	key	1	key	1	key	1
41	OFL	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1
		200		250		300		350		450		450	
		160		200		250		300		350		450	
42	FSW	base SW	1	base SW	1	base SW	1	base SW	1	base SW	1	base SW	1
		BF		BF		BF		BF		BF		BF	
43	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
44	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
45	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4
46	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4
47	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4
48	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
49	GK49	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1
50	GK50	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1



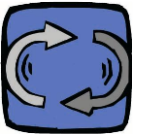
ONDERDELENLIJST (25-60 3 TRAPS) – COMPONENTS LIST (25-60 3 STAGES)



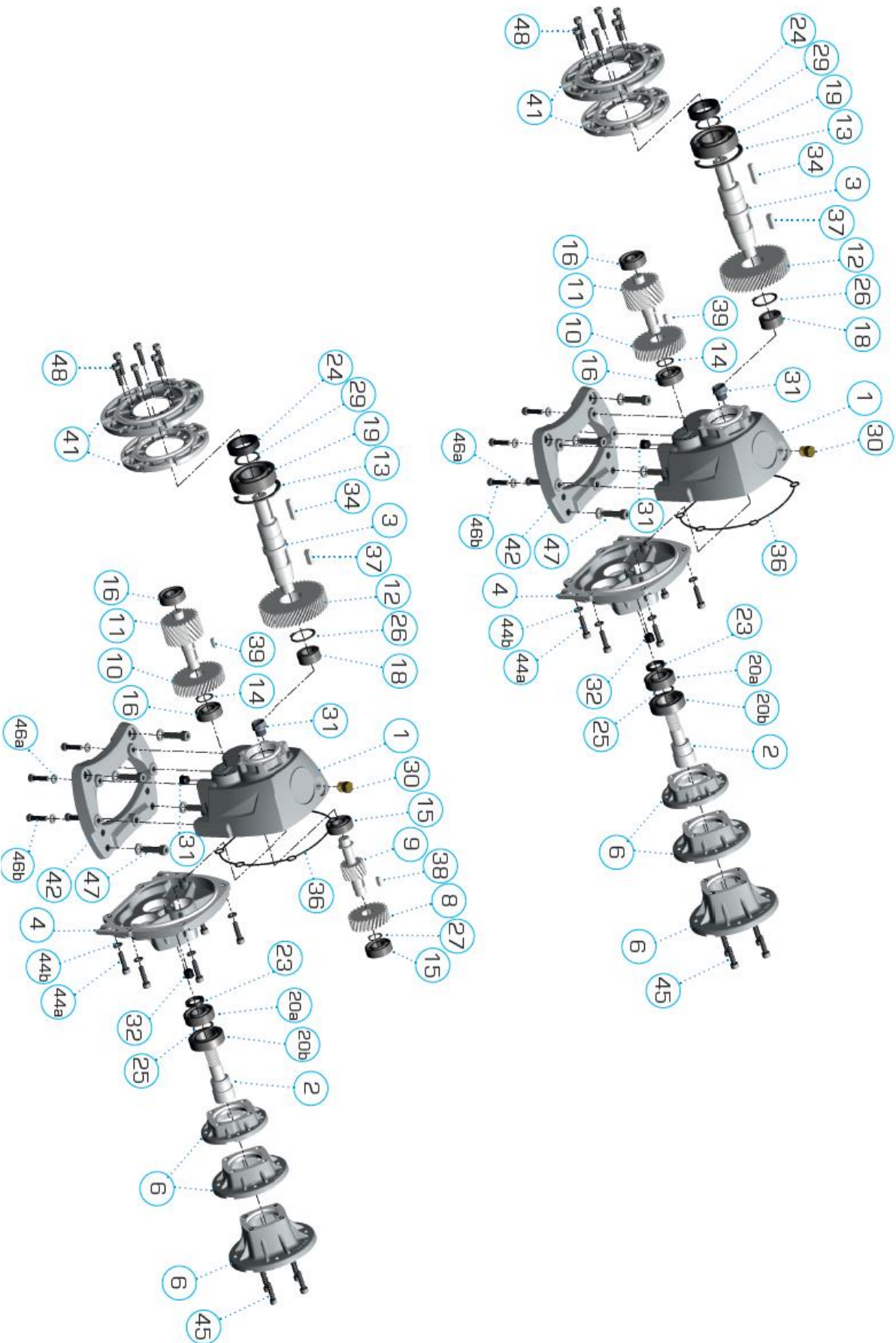


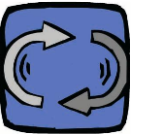
LIST OF COMPONENTS ROBUS 25-60 3 (3 REDUCTION STAGES)

ROBUS25-3			ROBUS30-3			ROBUS35-3			ROBUS40-3			ROBUS50-3			ROBUS60-3		
item	code	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty		
1	HOU	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1		
2	ISH	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	output shaft	1		
3	OSH	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1		
		D25xL50		D30xL60		D35xL70		D40xL80		D50xL100		D50xL100		D50xL120			
		D30xL60		D35xL70		D40xL80		D50xL100		D60xL120		D60xL120		D70xL140			
4	ICV	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1		
5	TCV	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1		
6	IFL	input flange	1	input flange	1	input flange	1	input flange	1	input flange	1	input flange	1	input flange	1		
		598E		71		80		90		100/112		100/112		100/112			
		71B5		80		90		100/112		132		180		180			
		80B5		90		100/112		132		180		200		200			
		90B5		100/112		132		180		200		200		200			
7	P1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1		
8	G1	gear 1	1	gear 1	1	gear 1	1	gear 1	1	gear 1	1	gear 1	1	gear 1	1		
9	P2	pinion 2	1	pinion 2	1	pinion 2	1	pinion 2	1	pinion 2	1	pinion 2	1	pinion 2	1		
10	G2	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1		
11	P3	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1		
12	G3	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1		
13	SP	spacer D30,5xL24	1	spacer D35,5xL32,5	1	spacer D40,5xL36,6	1	spacer D45,5xL41,5	1	spacer D55,5xL47,5	1	spacer D65,5xL54	1	spacer D75,5xL61	1		
14	SP	spacer D20xL22	1	spacer D20,5xL23,5	1	spacer D21,5xL24,5	1	spacer D23,5xL26	1	spacer D26,5xL28	1	spacer D30,5xL31	1	spacer D35,5xL34	1		
15	15inp	bearing 6009ZZ	1	bearing 6009ZZ	1	bearing 6203ZZ	1	bearing 6204ZZ	1	bearing 6206ZZ	1	bearing 6206ZZ	1	bearing 6207ZZ	1		
15out	BEA	bearing 6202	2	bearing 6203	2	bearing 6203	2	bearing 6204	2	bearing 6206	2	bearing 6206	2	bearing 6207	2		
16a	BEA	bearing 6202	1	bearing 6202	1	bearing 6203	1	bearing 6204	1	bearing 6206	1	bearing 6206	1	bearing 6207	1		
16b	BEA	bearing 6202ZZ	1	bearing 6203ZZ	1	bearing 6204ZZ	1	bearing 6205	1	bearing 6207	1	bearing 6207	1	bearing 6208	1		
17	BEA	bearing 6203	1	bearing 6204	1	bearing 6205	1	bearing 6208	1	bearing 6210	1	bearing 6210	1	bearing 6212	1		
18	BEA	bearing 6205	1	bearing 6206	1	bearing 6207	1	bearing 6208	1	bearing 6211ZZ	1	bearing 6211ZZ	1	bearing 6212ZZ	1		
19	BEA	bearing 6206	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6210ZZ	1	bearing 6213ZZ	1	bearing 6213ZZ	1	bearing 6215ZZ	1		
20a	BEA	bearing 6208	1	bearing 6209ZZ	1	bearing 6211ZZ	1	bearing 6211ZZ	1	bearing 6213ZZ	1	bearing 6213ZZ	1	bearing 6215ZZ	1		
20b	BEA	bearing 6208ZZ	2	bearing 6209ZZ	2	bearing 6211ZZ	2	bearing 6211ZZ	2	bearing 6213ZZ	2	bearing 6213ZZ	2	bearing 6215ZZ	2		
20	BEA	bearing 6208ZZ	2	bearing 6209ZZ	2	bearing 6211ZZ	2	bearing 6211ZZ	2	bearing 6213ZZ	2	bearing 6213ZZ	2	bearing 6215ZZ	2		
21	COV	plug seal D25	1	plug seal D30	1	plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D72	1	plug seal D80	1		
22	COV	plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D72	1	plug seal D80	1	plug seal D105	1	plug seal D130	1		
23	OS	oil seal 40x55x8	1	oil seal 45x60x9	1	oil seal 45x60x9	1	oil seal 55x80x10	1	oil seal 55x80x10	1	oil seal 65x90x12	1	oil seal 80x105x13	1		
24	OS	oil seal 35x62x11	1	oil seal 40x72x10	1	oil seal 50x80x12	1	oil seal 55x85x12	1	oil seal 65x90x12	1	oil seal 80x105x13	1	oil seal 100x125x15	1		
25	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1		
26	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1		
27	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1		
28	SNR	snap ring	2	snap ring D35	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2		
29	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1		
30	BPL	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1		
31	FPL	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6		
32	LPL	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1		
33	W/SH	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
34	KEY	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1	eye-bolt	1		
35	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
37	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
38	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
39	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
40	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1		
41	OFL	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1		
		200		250		300		350		450		450		450			
		180		200		250		300		350		350		350			
42	FSW	base SW	1	base SW	1	base SW	1	base SW	1	base SW	1	base SW	1	base SW	1		
		BF		BF		BF		BF		BF		BF		BF			
43	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6		
44	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6		
45	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4		
46	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4		
47	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4		
48	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6		
49	GK49	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1		
50	GK50	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1		



LIST OF COMPONENTS ROBUS A2-2 AND ROBUS A2-3



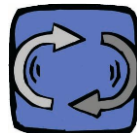


LIST OF COMPONENTS ROBUS A2-2 AND ROBUS A2-3

item code	description	q.tà
list of components Robus A2-2 (2 reduction stages)		
1	HOU Housing	1
2	ISH-P1 Input shaft with integrated pinion	1
3	OSH Output shaft	1
	D20x40	
	D25x50	
4	ICV Input cover	1
6	IFL Input flange	1
	63B14	
	71B14	
	80B14	
10	G2 Gear 2	1
11	P3 Pinion 3	1
12	G3 Gear 3	1
13	SNR Circlip	1
14	SNR Circlip	1
16	BEA Bearing, 6202ZZ	2
18	BEA Bearing, NA4903	1
19	BEA Bearing, 6206ZZ	1
20a	BEA Bearing, 6203ZZ	1
20b	BEA Bearing, 6005ZZ	1
23	OS Oil seal, 17X25X	1
24	OS Oil seal, 30X42X10	1
25	SNR Circlip	1
26	SNR Circlip	1
29	SNR Circlip	1
30	BPL Breather plug 1/4"	1
31	FPL Filler plug 1/4"	2
32	LPL Level plug 1/4"	1
34	KEY Key	1
36	OR o-ring	1
37	KEY Key	1
39	KEY Key	1
41	OFL Output flange	1
	120	
	140	
42	FT Base	1

item code	description	q.tà
additional components Robus A2-3 (3 reduction stages)		
8	G1 Gear 1	1
9	P2 Pinion 2	1
15	BEA Bearing, 6202ZZ	2
27	SNR External Circlip (G1)	1
38	KEY Key	1
39	KEY Key	1





GEARBOX SIZE SELECTION

The Service factor f_{sr} is a numeric value describing the gearbox service duty. The service factor f_s is the one offered by the gearbox at the rated input torque Nm and speed rpm of the motor. f_s must be \geq of the requested one f_{sr} .

f_{sr} takes into consideration parameters like:

- the daily working hours **h/d**
- the load classification, and then the moment of inertia of the driven masses.
- The number of starts per hour **s/h**
- The presence of brake motors
- The significance of the application in terms of safety, for example lifting of parts

Whenever the rated torque of a gearbox M_{n2} is higher than the requested one M_{r2} , the rated service factor can be increased according to the formula:

$$f_{s, \text{ real}} = \frac{f_s \text{ on the table} \cdot M_{n2} \text{ on the table}}{M_{r2}}$$

It is such real value of f_s that must be $\geq f_{sr}$.

For such calculations we recommend the use of Motive configurator <http://www.motive.it/en/configuratore.php>



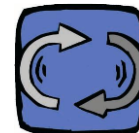
Keeping the same service factor, if a gearbox is subject to starting in both directions of rotation, you must decrease the rated torque Nm of 25%

OPSLAG

- Niet opslaan buitenshuis, in gebieden met buitensporige vochtigheid of andere weersinvloeden.
- Voor een opslag periode langer dan 60 dagen, alle machinaal en ongeverfde oppervlakten, zoals flenzen, grondplaten en assen beschermen met een geschikt anti-oxidatie product.
- Olie afdichtingen moeten ook werkelijk in aanraking zijn met olie. Alvorens de unit in gebruik te stellen dient de juiste olie hoeveelheid gecontroleerd en bijgevuld te worden wanneer nodig.
- Met tussenpozen van 4 tot 5 maanden, moet de uitgaande as worden gedraaid.

STORAGE

- Do not store outdoors, in areas exposed to weather or with excessive humidity.
- For storage periods longer than 60 days, all machined and unpainted surfaces such as flanges, bases, and shafts must be protected with a suitable anti-oxidation product
- Oil seals must be touched by the oil. Before putting them into operation restore correct quantity and type of oil.
- At intervals of 4 to 5 months, the output shaft should be rotated

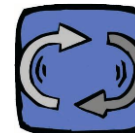


INSTALLATIE

- Zorg ervoor dat de ROBUS eenheid correct gemonteerd is om vibraties te voorkomen.
- Als schokken of overbelasting denkbaar zijn zou een hydraulische koppeling, een schakel koppeling, electronicsche koppelbegrenzers of anders gebruikt kunnen worden.
- Voor een juiste tandwielkast werking is het noodzakelijk dat er een goede uitlijning plaats vindt tussen aandrijving en aangedreven gedeelte.
- Waar mogelijk bevelen wij het gebruik van flexibele verbinding-koppelingen aan.
- Lijn met grote precisie eventuele extra buiten lagers uit . Verkeerde uitlijning kan tot lager en/of as beschadigingen leiden.
- Alvorens de aandrijving te starten dient de olie hoeveelheid gecontroleerd te worden in overeenstemming met de montage positie van de unit door het controleren van de olie niveau kijkglas/schroefdop.
- Bij montage buitenshuis moet ervoor gezorgd worden dat er een afdoende beschermkap gebruikt wordt ter bescherming voor regen en zonnestraling.
- Het wordt aanbevolen de assen te reinigen en in te smeren met een koperhoudig vet, zoals Optimol Paste HT waarmee voorkomen wordt dat de gemonteerde delen corroderen of vreten. Koper is een vervormbaar materiaal welke een belemmering vormt tegen contact van vergelijkbare materialen met elkaar. Als alternatieve kan een hoog viskeuze op oliebasis gebaseerd vet worden gebruikt. (Bijvoorbeeld Mobilgrease XTC)
- Wanneer er externe krachten kunnen ontstaan is het aan te raden pennen of positieve stops te gebruiken.
- Zelf-blokkerende ringen of lijm (loctite) moet gebruikt worden om bouten met moeren of andere oppervlakten te zekeren tegen losdraaien.
- Het wordt aanbevolen zo min mogelijk gebruik te maken van overhangende rondsels. Wanneer het niet anders kan dan deze zo dicht als mogelijk te monteren op de uitgaande as bij het binnen lager, waarmee grote radial krachten kunnen worden voorkomen.
- Riemen of kettingen monteren met minimale voorspanning.
- Gebruik nooit een hamer voor het monteren of de-monteren van delen, maar maak gebruik van aanwezige taggaten.
- Voor een gelijkmatige en geluidsarme werking van de motor bevelen wij het gebruik van Motive motoren aan.
-

INSTALLATION

- Make sure that the ROBUS unit is correctly secured to avoid vibrations.
- If shocks or overloads are expected, install hydraulic couplings, clutches, electronic torque limiters, control units, etc.
- For a satisfactory gearbox performance, it is essential to align correctly the motor and the driven machine.
- Whenever possible, we suggest to interpose flexible couplings
- Align with precision the eventual outboard bearing, because any misalignment would cause high overloads, with a subsequent rupture of a bearing or the shaft
- Before starting up the machine, make sure that the oil level is conform to the mounting position specified for the ROBUS unit by checking the level plug
- For outdoors installation provide adequate guards in order to protect the drive from rainfalls as well as direct sun radiation.
- It is recommended to clean and lubricate the connection shafts with grease having a copper base (example Castrol Optimol Paste HT) in order to avoid fretting corrosion and seizure. Copper, in fact, being very malleable, is like a barrier against the direct contact between two similar metals. In alternative, you can use a grease having high viscosity base oil which remains particularly adhesive (example Mobilgrease XTC)
- Whenever there are outer loads, it is recommended to use pins and positive stops
- Self-locking adhesives should be used on the bolts and joining surfaces of the machine frame to prevent gearbox and driven machine to get loose
- It is recommended to avoid to fit cantilever pinions. If this is not possible, minimize the distance between pinion and output shaft to avoid excessive radial loads
- He pre-loading of belts and chains to the minimum
- Never use the hammer for mounting/dismantling of the jeyed parts, but use the tapped holes provided on the head of the shafts
- For a smooth and silent working, it is recommended the use of Motive motors



CONTROLLI PERIODICI

Ogni 3.000 ore di lavoro, e comunque almeno ogni 6 mesi:

- controlla l'olio ed il suo livello;
- pulisci le superfici esterne ed i passaggi di aria per la ventilazione;
- pulisci il passaggio d'aria del tappo di sfianto;
- controlla visivamente se ci sono perdite dalle tenute;
- se c'è il braccio di reazione, controlla la boccia plastica e se necessario cambiala.

Ogni 20.000 ore di lavoro, e comunque almeno ogni 5 anni:

- se versione ATEX**, cambiare l'olio sintetico (se con olio minerale, seguire sempre le istruzioni standard);
- sostituire il grasso dei cuscinetti aperti non toccati dall'olio (es: cuscinetti conici con nilos).

ROUTINE CHECKS

Every 3.000 working hours, and at least every 6 months:

- check oil level;
- clean external surfaces and the ventilation air passages;
- clean the breather plug air passage;
- check visually the absence of leakage from seals visually;
- for gear units with a torque arm, check the rubber buffer and change it, if necessary.

Every 20.000 working hours, and at least every 5 years:

- if ATEX version**, change synthetic oil with with mineral oil, always follow standard instructions);
- replace anti-friction bearing grease of open bearings not touched by oil (for instance, taper roller bearings with nilos).

GEBRUIKS TEMPERATUUR

De gebruiks temperatuur hangt van verschillende factoren af, zoals het type van de aandrijving, de kwaliteit van de smering, het benodigde toerental en vermogen en de omgeving waarin de aandrijving gebruikt wordt.

Voor een standaard co-axiale tandwielkast is de maximaal toelaatbare temperatuur binnen in de kast 80°C.

Wanneer een tandwielkast in toerental varieert is het belangrijk dat de gebruiks temperatuur constant is wanneer de tandwielkast op een standaard toerental draait; dat geeft aan dat de tandwielkast probleemloos functioneert.

- Wanneer er een 2 polige motor (ingaand toerental circa 2800 toeren/min) gebruikt wordt, kunnen er een paar extra attentie punten ontstaan, zoals de temperatuur binnen in de kast, het vibratie niveau en het geluid. Als algemene regel houden wij aan dat wormwiel tandwielkasten met een 2 polige motor slechts gebruikt worden voor installaties met een relatieve lage service factor (1,25 max.) en een erg lage start-stop intervallen.

- gedurende de eerste 4 uur kunt u een regelmatige verlaging van de binnen temperatuur constateren , omdat de tandwielkast componenten zich gaan zetten.

OPERATING TEMPERATURE

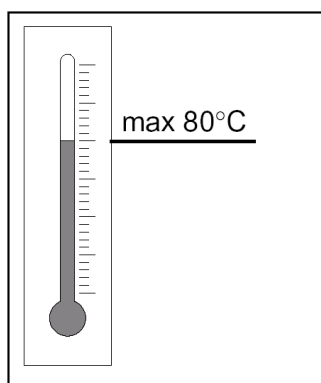
The operating temperature depends on a number of factors such as the type of power transmission, the quantity of lubricant, the speed and power applied and the environment in which the gearbox is operating.

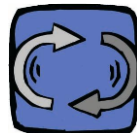
With a standard helical gearbox, the maximum allowable inside temperature is 80°C.

In case of control, it is important to check that the operating temperature when the gearbox runs at normal speed is constant; this indicates that the gearbox is running in a trouble-free manner

- If we use a 2 poles motor (n1 about 2800RPM), a few potential problems, like the temperature inside the gearbox, vibrations or noise, can grow. As a general rule, we recommend the use of wormgearboxes with 2 poles motors only in applications having a relatively low service factor (1.25 max.) and a very low degree of intermittency.

- during the first 4 hours, you may assist to a gradual decrease of the inner temperature due to the gearbox components settling.





ONDERHOUD

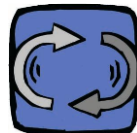
Onderhoud wordt gelimiteerd tot de aanwijzingen in het hoofdstuk "smering" en tot het goed extern schoonhouden , uitgevoerd met uitsluitend niet oplosbare schoonmaak middelen , zodat de verf niet beschadigd wordt.

Wanneer olie bijgevuld moet worden, maar is geen olie overeenkomstig de gebruikte beschikbaar, dan bevelen wij aan de tandwielkast te ontdoen van de gebruikte olie en de tandwielkast inwendig te reinigen alvorens de nieuwe olie te gebruiken.

MAINTENANCE

Maintenance is essentially limited to the requests reported in the charter "lubrication" and to an accurate external cleaning, usually carried out with bland solvents in order to not to damage the paint

When it is necessary to fill the oil but there is no compatibility of the new oil with the one inside the gearbox, we suggest to empty the gearbox from its oil and wash it before putting the new oil



SMERING – LUBRICATION



olie (lt)

ROBUS	B3	B6	B7	B8	V5	V6	ISO	temp.	olie type	
A2	0,35	0,55	0,65	0,6	0,6	0,55	VG 220	-25 + 80°C	Fuchs Renolin PG	Shell Omdia S4 WE
25	0,3	0,75	0,95	0,95	1,3	0,85				
30	0,7	1,5	1,5	1,5	2,6	1,6				
35	1,1	2,2	2,2	2	3,9	3,6				
40	1,2	2,5	3,4	3,4	4,75	3,8				
50	2,3	6,3	6,5	6,5	8,80	6,7				
60	4,6	11,3	11,7	11,7	15,30	11,7				

Tenzij iets anders gespecificeerd, wordt iedere ROBUS voorzien van een lange levensduur synthetische olie (hoeveelheid als nodig voor positie B3).

Na een eventuele bijvulling kan iedere ROBUS in welke positie dan ook gemonteerd worden, waardoor een groot voordeel ontstaat wat betreft voorraad vorming en levertijd.

Iedere aandrijving wordt geleverd met schroeven voor het vullen, aflaten en niveau-controle van de olie. Verder wordt er een ontluchting schroef mee geleverd. Voor het starten van de aandrijving bevelen wij aan om de vulschroef aan de bovenkant van de kast te vervangen door de ontluchting schroef.



Niveau-kijkglas schroeven, volgens de navolgende tabel gemonteert, zijn een goede referentie voor de controle dat de juiste olie hoeveelheid in de kast aanwezig is. (geheel bedekt kijkglas, wanneer de tandwielkast stilstaat = genoeg olie)



Alleen in de positie V5/V1, gelimiteerd tot de grootten ROBUSA2, 25 en 60, geeft de volledige bedekking van het kijkglas geen zekerheid dat er voldoende olie in de kast aanwezig is. Een juiste hoeveelheid van olie in de kast moet alle reductie trappen en alle open lagers smeren. In die gevallen, of wanneer het kijkglas niet gemonteerd kan worden door een mechanische belemmering door andere machine delen (mogelijk bij B7 of V5 montage) kan de juiste olievulling gecontroleerd worden door gebruik te maken van een peilstok.

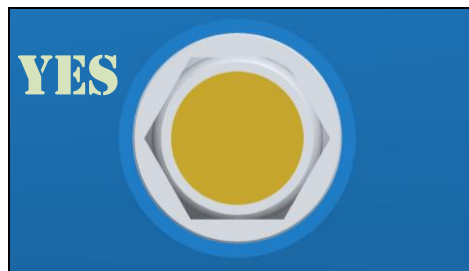
Unless otherwise specified, each ROBUS is supplied long-life synthetic oil (quantity as per position B3).

After an eventual oil addition, each ROBUS can be mounted in any mounting position, thus giving big advantages in the stock management and lead time

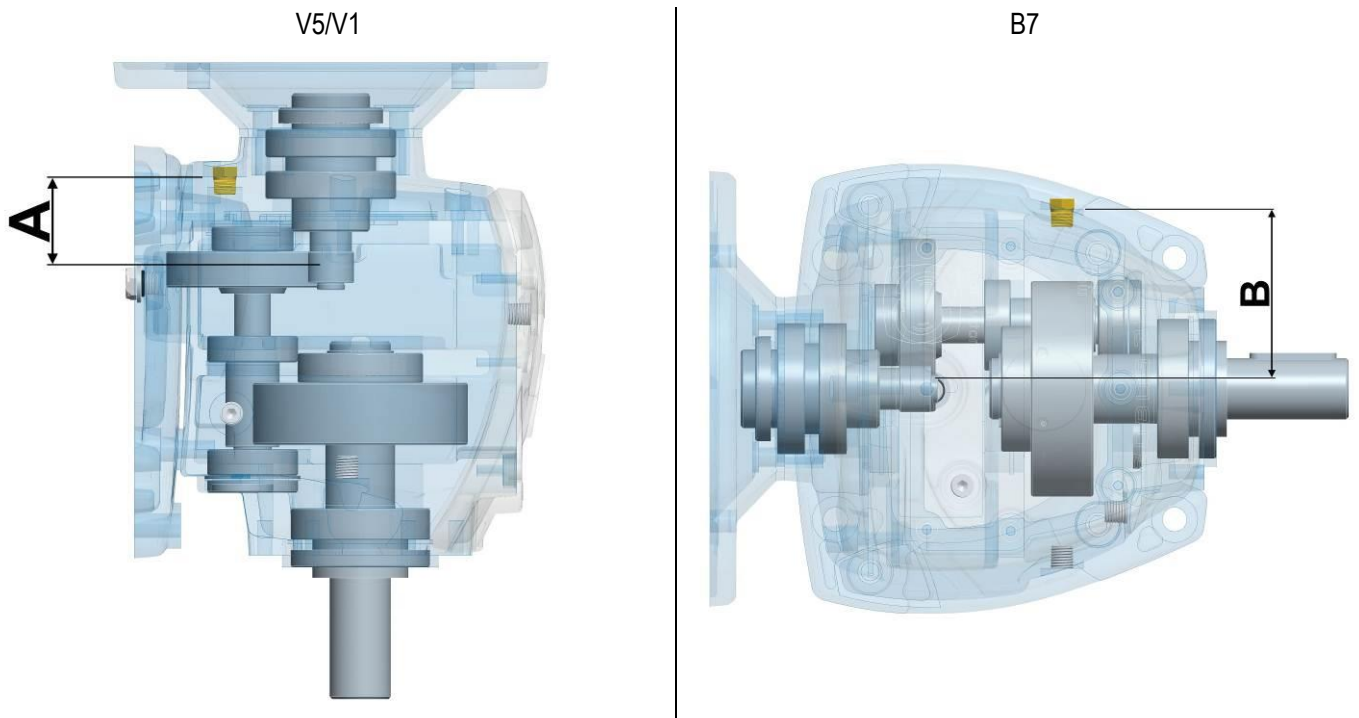
All units are supplied with plugs for loading, discharging and checking the level of the oil. Furthermore, they are accompanied by a breather plug. Before start-up, we suggest to re-place the filler plug in the upper side of the unit with the breather plug.



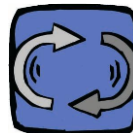
Level plugs, correctly positioned as per following tablechart, are a useful reference for the verification of the correct oil quantity (completely covered plug when gearbox is not working = enough oil).



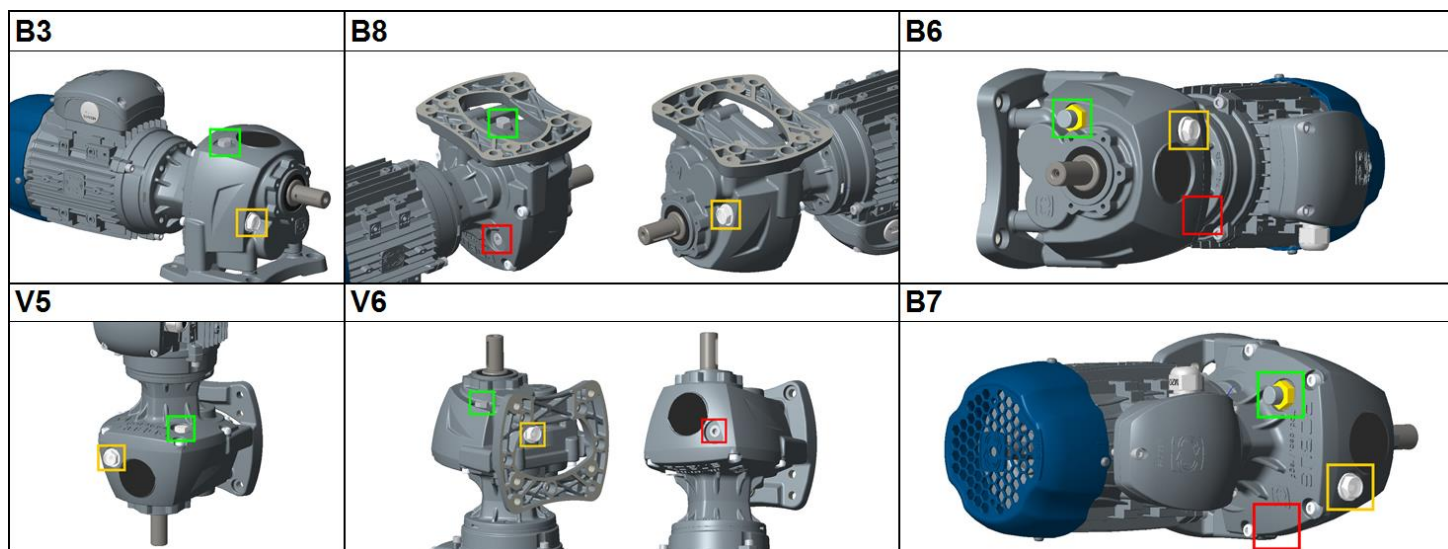
Only in position V5/V1, limited to sizes ROBUSA2, 25 and 60, the cover of the filler plug doesn't assure the presence of the correct oil quantity. A correct oil quantity permits to lubricate all reduction stages and all open bearings. In such cases, or when you cannot put the level plug for mechanical interference with machine parts (possible on B7 or V5 mounting) to check the correct oil quantity you can measure the oil level by using a rod



ROBUS	A (V5)	B (B7)
25	20	65
30	45	85
35	45	90
40	45	90
50 (PAM90-112)	47	115
50 (PAM132-160)	62	115
60	80	170



MONTAGE POSITIES – MOUNTING POSITIONS



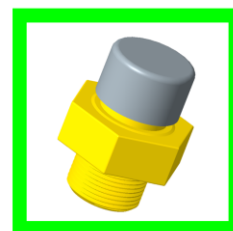
Ontluchting schroef
Breather plug



Niveau schroef
Level plug



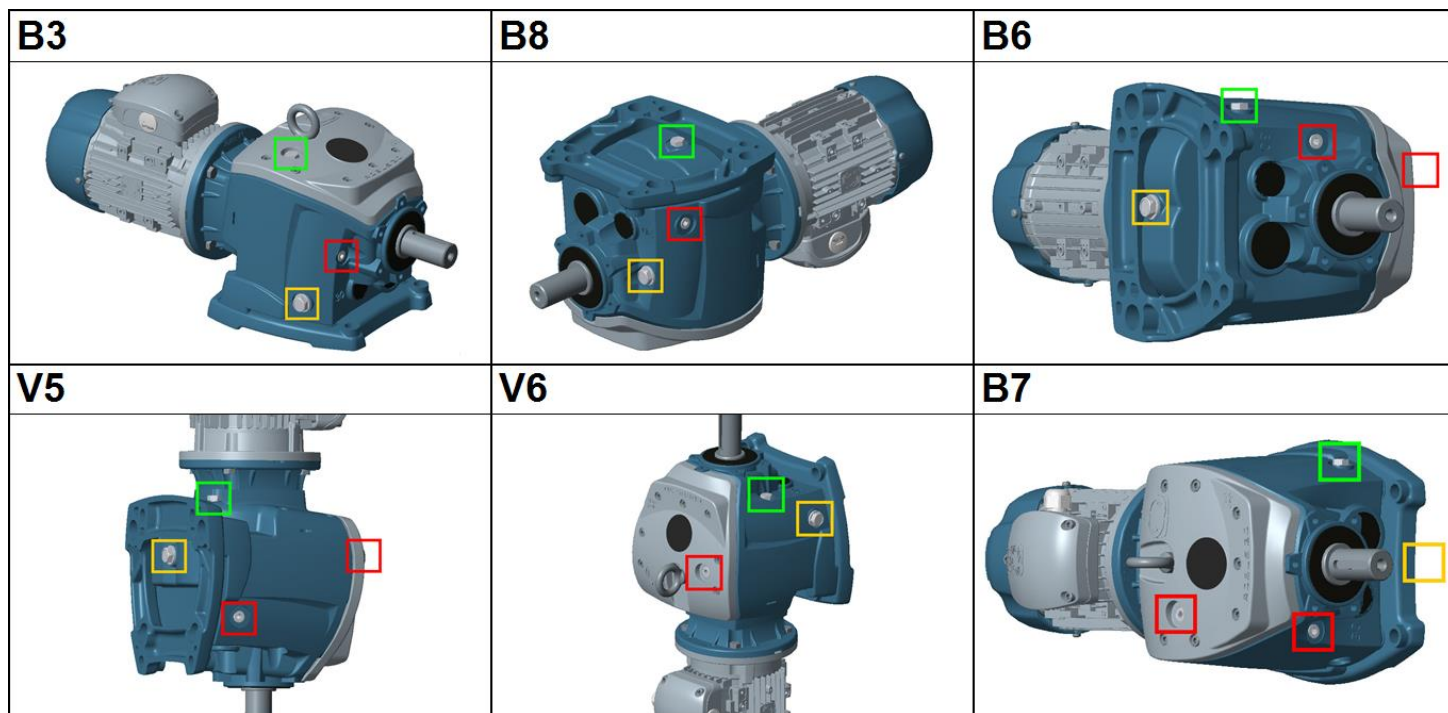
Vulschroef
Filler plug

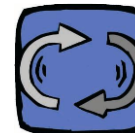


Drukontluchtingsplug (opt.) *
Pressure breather plug (opt.) *

*In some cases (for example, in the presence of a variable speed drive) it may be necessary to use the pressure breather plug (0.2-0.3Bar) instead of the standard valve one. Mandatory for ROBUSA2 with mounting position B6 and B7.

*In sommige gevallen (bijvoorbeeld in aanwezigheid van een aandrijving met variabele snelheid) kan het nodig zijn om de drukontluchtingsplug (0,2-0,3 bar) te gebruiken in plaats van de standaard klep. Verplicht voor ROBUSA2 met montagepositie B6 en B7.



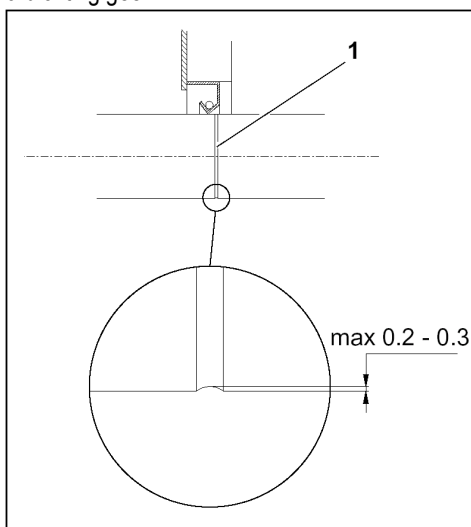


VERVANGING VAN OLIE KERINGEN

Wanneer de oliekering op de as niet goed meer functioneert, moet deze zo snel mogelijk vervangen worden, zodat olie verlies voorkomen wordt en schade voorkomen kan worden aan andere delen.

Bij montage van een nieuwe oliekering moet rekening gehouden worden met het volgende:

- werk zorgvuldig en wees er zeker van dat de nieuwe te gebruiken afdichting in goede staat is, speciaal wanneer deze lang opgeslagen is geweest en er een grote mate van vochtigheid was.
- controleer altijd, dat de as-zitting van de afdichting geen oppervlakte schade vertoont. Wanneer het oppervlak waar de seal op loopt meer dan 0,2 tot 0,3 mm versleten is, monteer dan geen nieuwe seal.
- Voorkom dat de afdichting op precies de zelfde plaats komt te zitten als de oude.
- Monteer de afdichting recht op de as, met de afdichtingslip geheel vrij en niet gebogen of geknakt.
- Monteer de afdichting zodanig dat de lip aan de oliekant is welke binnen moet blijven, of aan die kant waar de druk het hoogst is.
- Bij afdichtingen zonder stof lip moet de buitenkant van de lip met vet gesmeerd worden.
- Bij afdichtingen met stof dichte lip, moet de ruimte tussen de afdichtings lip en de stof lip gevuld worden met vet.
- Smeer de afdichting zitting op de as met vet.
- Gebruik nooit vloeibare pakking, omdat dit een snelle slijtage veroorzaakt.
- Wanneer een afdichting gemonteerd wordt, druk deze dan zo ver mogelijk tot aan de buitenrand.
- Blokkeer de afdichting niet axiaal of gebruik niet te veel kracht.
- Gebruik altijd geschikt gereedschap om te voorkomen dat de afdichting beschadigd wordt door draden, scherpe kanten, sleutels en dergelijke.
- Bescherm altijd de afdichting en de as zitting wanneer er opnieuw geleverd wordt.
- Gebruik olie afdichtingen volgens het type wat aangegeven wordt in tabel 1.

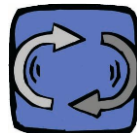


OIL SEALS REPLACEMENT

When a shaft seal doesn't work properly, it must be replaced rapidly, in order to avoid that the oil leakage goes further on, and that the damage extends to some other components.

When fitting a new seal, the following precautions are required:

- take particular care in handling, and make sure that the seal is in good conditions, particularly if long times of stocking could have caused a premature wear, especially in presence of excessive humidity
- always check that the shaft seal seat is in good conditions, free of surface defects. If the area where the ring seal comes into contact with the shaft has worn down by more than 0,2-0,3mm, do not install a new seal
- care to prevent the new seal lip from working exactly on the same trace left by the previous one
- fit the shaft seal perpendicularly to the axis, with the lips wholly free, not curled under or pinched
- install the ring seal so that the lip faces the oil that must be kept in or the side from where the pressure is exerted
- for ring seals without a dust-tight lip, coat the outside of the lip with grease
- for ring seals provided with a dust-tight lip, fill the gap between the seal lip and dust-tight lip with grease
- lubricate the seal seat on the shaft
- do not use sealants because if they get on the seal lip or shaft surface they can cause rapid wear
- when installing the seal, press down as near as possible the outside edge
- do not block the ring seal axially or apply too much load
- always use suitable tools to avoid damaging the seal lip with threads, grooves, sharp edges or keyways
- always cover the seal lip and the seat on the shaft when repainting the gearbox
- use oil seals of the type indicated in table 1



“MF KIT”

“MF KIT” voorziet al de benodigde delen om een standaard flens motor –montage ROBUS om te vormen in een ROBUS+MF

Om een KIT MF te monteren, moet een speciale montage aangevraagd worden bij Motive.

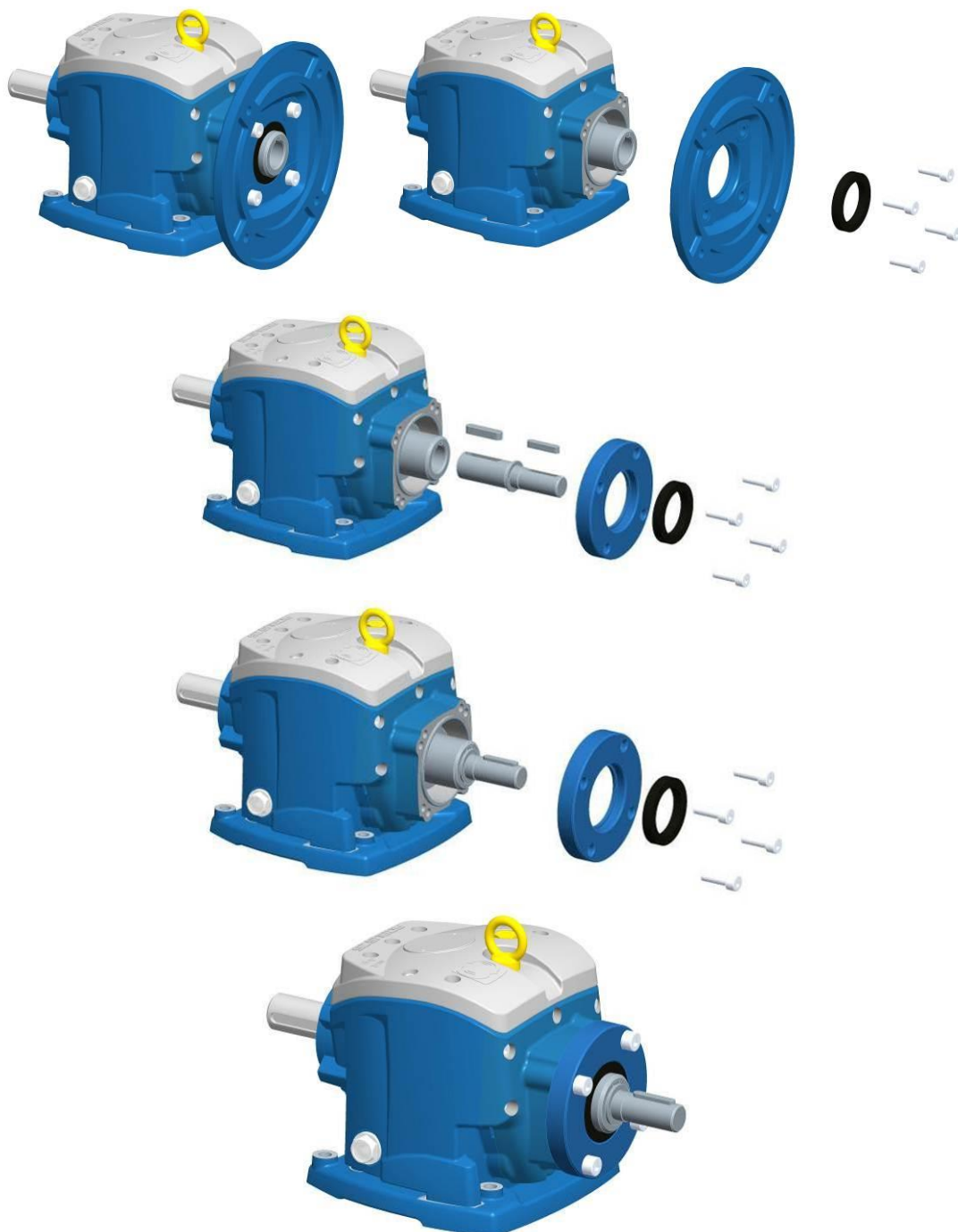
Slechts Motive geautoriseerde montage centra en distributeurs mogen deze montages doen en de noodzakelijke eindtest uitvoeren.

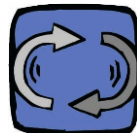
“MF KIT”

“MF KIT” is composed by all the needed parts to transform a standard flange motor-mounting ROBUS into a ROBUS+MF.

In order to mount a KIT MF, you must request the specific instructions to Motive.

Only Motive authorized assembly centers and distributors are allowed to make these operations and the consequent final test.





LIMITATORI DI COPPIA

TORQUE LIMITERS

Limitatori di coppia serie standard con regolazione della coppia di intervento SAFEGUARD-SYNCHRON-SAFELIFTING-ROTA FREE

Durante il servizio normale il giunto di sicurezza trasmette la coppia dalla parte mobile (2) alla flangia (3) attraverso una corona di sfere (4° - SAFEGUARD) o di rulli (4b - SYNCHRON, SAFE LIFTING, ROTA FREE, SAFEGUARD-R), costretti dalla pressione delle molle a tazza (6) dentro sedi ricavate sulle due metà (2) e (3) del giunto. Quando la coppia richiesta supera il valore pretrataro dalla coppia di intervento, le sfere o i rulli sono spinti fuori dalle loro sedi. Le due metà (2) e (3) si sganciano per sovraccarico, trasmettendo una coppia residua molto bassa, e la parte mobile (2) spinge contro la forza delle molle a tazza (6), ad azionare l'interruttore (9) di comando dell'arresto di emergenza del motore. Il reinserimento è automatico al valore di coppia pretrataro quando il sovraccarico cessa.

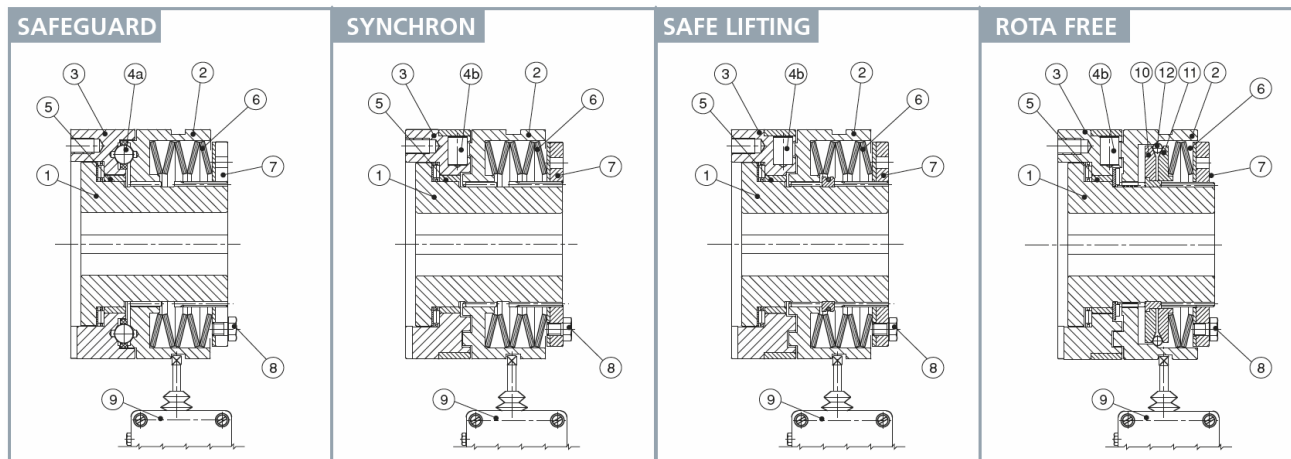
Nella versione SYNCHRON il reinserimento (a velocità ridotta) avviene dopo 360° dal distacco, così da rispettare il sincronismo fra le due metà (2) e (3) del giunto. Nella versione SAFE LIFTING (impiegata per lo più per sollevamenti), i rulli (4b) non possono uscire completamente dalle sedi, la parte mobile (2) aziona l'interruttore, ma la trasmissione di coppia fra le due metà (2) e (3) del giunto non viene interrotta. Nella versione ROTA FREE adatta per alte velocità, in caso di sovraccarico le due parti (2) e (3) si sganciano completamente e la parte mobile (2) rallenta, folle, fino a fermarsi. Il reinserimento è manuale, martellando leggermente la parte (2) con un martello di gomma.

Torque limiters standard series with torque adjustment SAFEGUARD-SYNCHRON-SAFELIFTING-ROTA FREE

During normal operations the torque limiter transmits the torque from the moving part (2) to the flange (3) through balls (4a - SAFEGUARD) or rollers (4b - SYNCHRON, SAFE LIFTING, ROTA FREE, SAFEGUARD-R) pressed by the disc springs (6) into the indentations on both halves (2) and (3).

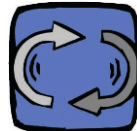
In case of overload, when the torque demand exceeds the preset value, both halves (2) and (3) are disengaged and they transmit only a small residual torque. The balls or rollers are pressed out of the indentations, thus pushing the moving part (2) axially against the force of the disc springs (6), and activating a switch (9) to begin the emergency stop of the motor. The re-engagement is automatic at the pre-set torque when the torque demand drops. The SYNCHRON type re-engages (at slow speed) once per revolutions at a reference point and keep the two halves (2) and (3) of the torque limiter synchronised. In the SAFE LIFTING type the rollers (4b) are not allowed to go out completely from the indentations, so that the moving part (2) can activate the switch, but the torque transmission within the two halves (2) and (3) is not interrupted.

In a high speed application, at the moment of overload, the ROTA FREE type will disconnect driven from driver shaft by the complete disengagement of part (2) from part (3), while ring (2) will slow down, idle, up to a stop. Re-engagement must be done manually, lightly taping the part (2) with a soft mallet.



Coppie trasmissibili	min.	2,5 Nm	Diametri fori disponibili	min.	7 mm
Transmissible torque	max.	8200 Nm	Hole diameters available	max.	100 mm





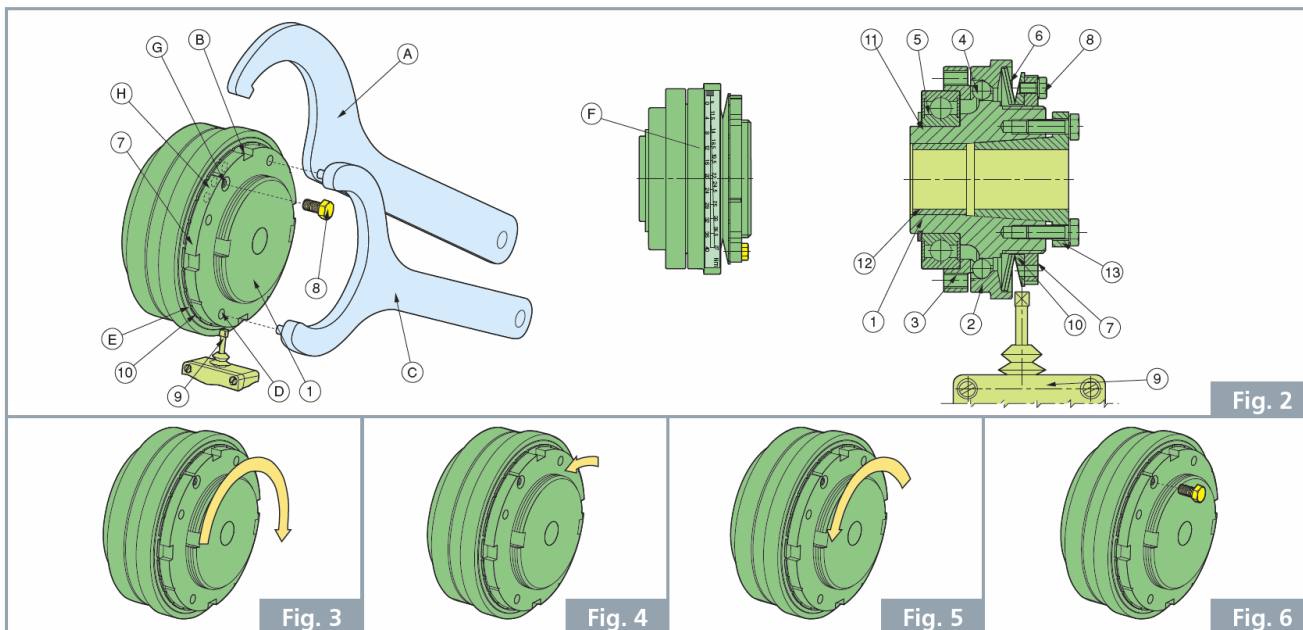
ZBC-NBC Limitatori di coppia a gioco zero

Durante il servizio normale il limitatore di coppia ZBC - NBC (fig.2) trasmette la coppia dal mozzo (1) alla flangia (3) attraverso la corona di sfere (4) costrette dalla pressione delle molle a tazza (6) sulla flangia mobile (2) dentro sedi ricavate sulle parti (1) e (3). In caso di sovraccarico, quando la coppia richiesta supera il valore pretarato, le sfere sono spinte fuori dalle sedi della flangia (3): le due parti (1) e (3) si sganciano trasmettendo una coppia residua molto bassa, e la parte mobile (2) vincendo la spinta delle molle a tazza (6), aziona l'interruttore (9) che comanda l'arresto di emergenza del motore. Il reinserimento è automatico al valore di coppia pretarato quando il sovraccarico cessa.

Nella versione SYNCHRON il reinserimento avviene da fermo o a velocità basse dopo 360° dal distacco, così da rispettare il sincronismo tra la flangia (3) e il mozzo (1). Le molle a tazza lavorano nel solo campo negativo della curva (fig.1) e quindi la ghiera di regolazione (7), ruotata in senso antiorario fornisce un carico crescente alle molle a tazza (6) e quindi una coppia di intervento maggiore. La ghiera (7) è mantenuta in posizione dal bloccaggio della vite di fermo (8). ZBC porta 8 fori filettati di fissaggio e un cuscinetto per servizio pesante, NBC 6 fori filettati di fissaggio e un cuscinetto per servizio leggero.

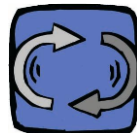
ZBC-NBC Zero backlash torque limiters

the torque from the hub (1) to the flange (3) through a ball crown (4) forced by the pressure of the disc springs (6) on the moving flange (2) into the seats on the two parts (1) and (3). In case of overload, when the torque demand exceeds the pre-set value, both the parts (1) and (3) are disengaged and they transmit only a small residual torque: the balls are pressed out of the indentations of the flange (3), thus pushing the moving part (2) axially against the force of the disc springs (6), and activating the emergency stop switch of the motor (9). The re-engagement is automatic at the pre-set torque when the torque demand drops. The SYNCHRON type re-engages during stoppage or at low speed once per revolution at a reference point and keep the hub (1) and the flange (3) of the torque limiter synchronised. The disc springs are working only in the negative area of their characteristics (fig.1), so the adjustment nut (7), when tightened anticlockwise, provides an increasing axial load to the disc springs (6) and a higher disengaging torque: when the pre-set torque level is reached the nut (7) is locked in position by means of the locking screw (8). ZBC holds 8 fixing threaded holes and a heavy duty bearing, NBC 6 fixing threaded holes and a light duty bearing.



Coppie trasmissibili	min.	0,65 Nm	Diametri fori disponibili	min.	6 mm
Transmissible torque	max.	3100 Nm	Hole diameters available	max.	80 mm





SECUREX Limitatori di coppia a strisciamento con regolazione della coppia di intervento

Il limitatore di coppia Securex agisce come una protezione dai sovraccarichi in azionamenti che impiegano ingranaggi o pulegge.

Si tratta di un dispositivo di impiego molto semplice ed efficace, che offre una completa affidabilità operativa ed è adatto ad applicazioni che comportano sovraccarichi occasionali a basse velocità. Il limitatore di coppia protegge parti meccaniche o macchine che possono essere soggette a sovraccarichi, slittando quando la coppia richiesta oltrepassa un valore pretarato. Mantiene inoltre il reinserimento automatico al

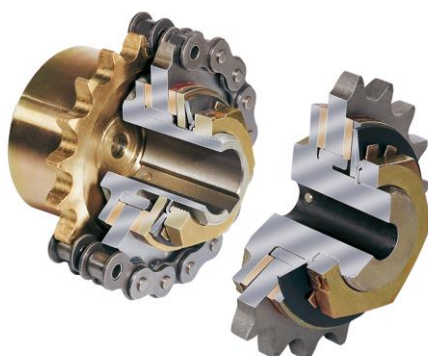
valore di coppia pre-tarato quando il sovraccarico cessa. La coppia di slittamento è tarata al valore richiesto tramite la regolazione del carico delle molle a tazza sulle guarnizioni di attrito.

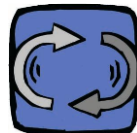
SECUREX Friction torque limiters with torque adjustment

The torque limiter Securex acts as an overload protection in machine drives using sprockets or pulleys. These devices are extremely simple to use and offer complete operating security for applications involving occasional overloads at low speed.

The torque limiter protects mechanical parts and machines which may be subjected to overloading of various kinds, by slipping when the torque demand exceeds a preset value. It maintains re-engagement at pre-set torque when the overload torque has passed; no resetting is required. Slip torque is presetted by adjustment of the spring force on the pressure plate and friction surfaces.

Copie trasmissibili	min.	2 Nm	Diametri fori disponibili	min.	5 mm
Transmissible torque	max.	10000 Nm	Hole diameters available	max.	120 mm





GIUNTI

COUPLINGS

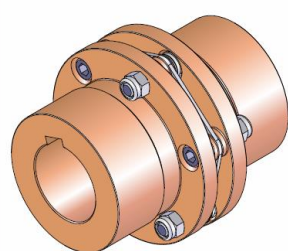
FLEXSTEEL-Giunti lamellari

Flexsteel è un giunto a gioco zero che impiega come elemento di trasmissione un pacco di lamelle in acciaio inossidabile, torsionalmente rigido, ma assialmente e angolarmente flessibile, per compensare disallineamenti fra due alberi; due mozzi metallici sono collegati al pacco lamellare da boccole di precisione e viti ad alta resistenza.

FLEXSTEEL-Lamellar couplings

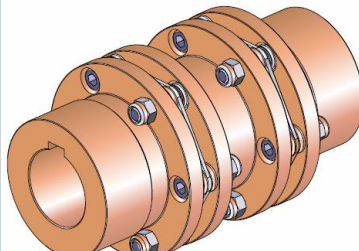
Flexsteel is a zero backlash coupling which uses a disc pack made of stainless spring steel as a drive element, torsionally stiff, but axially and angularly flexible, to compensate shafts misalignments. Two metal hubs are connected to the discs pack by micrometric precision bushings and highly resistant screws.

Fig. 1A Pacco singolo

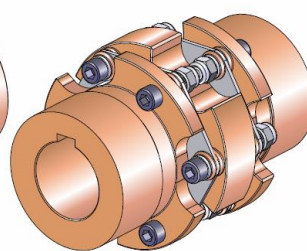


Forma base **A**

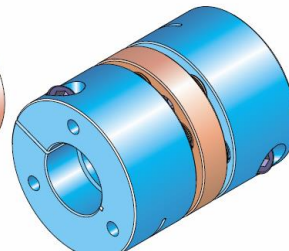
Fig. 1B Pacco doppio



B



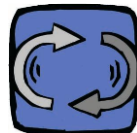
B Hmin



S

Coppie trasmissibili	min.	18 Nm	Diametri fori disponibili	min.	7 mm
Transmissible torque	max.	46000 Nm	Hole diameters available	max.	180 mm





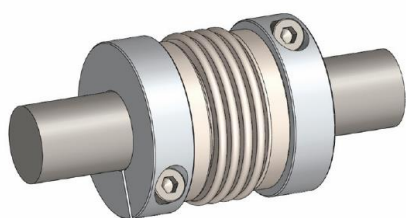
METALFLEX-Giunti a soffietto

METALFLEX è un giunto altamente innovativo, ideale per applicazioni ad alte prestazioni che richiedano ripetibilità, posizionamenti precisi, controllo dei movimenti e dei sincronismi, alte velocità. METALFLEX è composto da due mozzi di alluminio con bloccaggio a morsetto, collegati da una speciale molla in acciaio inossidabile a parete sottile, che rimane rigida sotto carico torsionale, ma è flessibile assialmente, radialmente, angolarmente, per compensare disallineamenti fra gli alberi da collegare: ne risulta un giunto senza gioco, con bassi momenti di inerzia, ad alta rigidità torsionale. Il vantaggio di METALFLEX in confronto ad altri giunti a gioco zero disponibili sul mercato, quali giunti elicoidali o giunti con corona elastica precompressa, consiste nella più alta rigidità torsionale, fattore determinante per la precisione dei posizionamenti: più il giunto è torsionalmente rigido, più precisa è la trasmissione del moto dal motore al componente condotto.

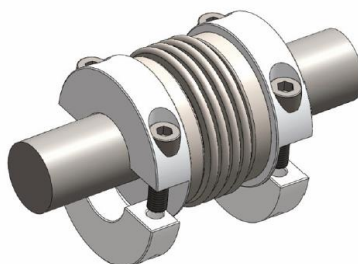
METALFLEX-Bellow couplings

MeTalflex is an innovative coupling for high performance applications requiring repeatability, accuracy in positioning, motion and synchronization control at high speed. MeTalflex is an assembly of two aluminium clamping hubs and a thin walled stainless steel bellow, which remains rigid under torsional load, but it is axially, radially and angularly flexible in order to compensate misalignments within the connecting shafts: the result is a zero backlash high torsional stiffness low inertia coupling. The advantage of MeTalflex against other zero backlash couplings on the market, as beam or curved jaw couplings, is a higher torsional stiffness, key factor for the precision in positioning: a higher torsional stiffness means more accuracy in the motion transmission from the motor to the driven component.

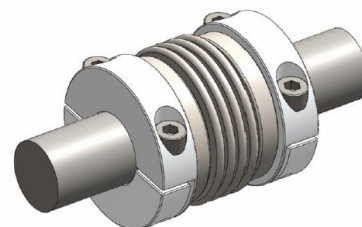
Tipo/Type A **Mozzi a morsetto**
Clamping hubs



Tipo/Type B **Mozzi scomponibili**
Split hubs



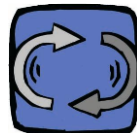
Prima del montaggio
Before mounting



Dopo il montaggio
After mounting

Coppie trasmissibili	min.	1,1 Nm	Diametri fori disponibili	min.	3 mm
Transmissible torque	max.	500 Nm	Hole diameters available	max.	70 mm





COMPOLASTIC-Giunti elastici

COMPOLASTIC è una serie di giunti composti da due corone dentate in ghisa G25 accuratamente lavorate all'utensile i cui denti lavorano unicamente a compressione su un elemento elastico.

Il particolare e nuovo disegno dell'elemento elastico garantisce una trasmissione del moto con caratteristiche di silenziosità e di durata di vita che sono ai vertici della categoria ed ineguagliabili da ogni altro sistema.

COMPOLASTIC consente inoltre una trasmissione positiva e sicura in ogni circostanza, assorbe le vibrazioni torsionali e compensa importanti disallineamenti assiali, angulari, radiali degli alberi da collegare.

Il materiale dell'elemento elastico centrale consente a COMPOLASTIC di essere impiegato in una gamma di temperature da -30°C a +80°C.

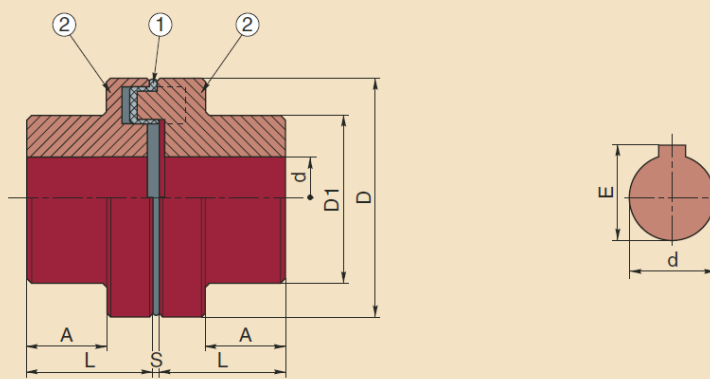
COMPOLASTIC-Elastic couplings

COMPOLASTIC is a series of coupling consisting of two toothed hubs in G25 cast iron, precision machined, whose teeth work only at compression against an elastic element.

The special new design of the elastic element guarantees silent drive transmission and maximum durability for the category that is unequalled by any other system.

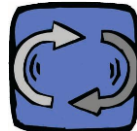
COMPOLASTIC ensures a fail safe drive under all conditions, it absorbs torsional vibrations and compensates for important axial, angular and radial misalignments of the shafts to be connected.

COMPOLASTIC can be used at a temperature range of -30°C to +80°C



Coppie trasmissibili	min.	19 Nm	Diametri fori disponibili	min.	8 mm
Transmissible torque	max.	2000 Nm	Hole diameters available	max.	100 mm

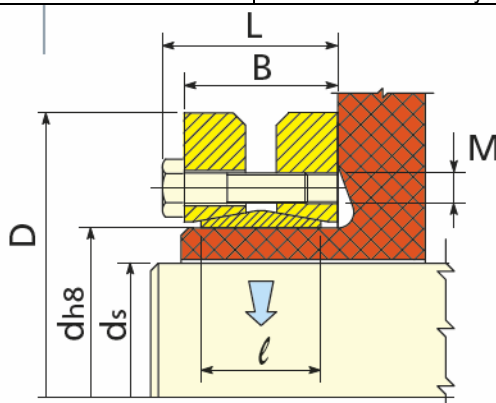




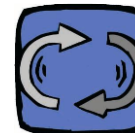
CALETTATORI

SHRINK DISCS

<p>CALETTATORE CONEX SD Servizio normale</p> <p>Blocco dall'esterno Concentricità ottima</p>	<p>CONEX SD-SHRINK DISC Standard duty</p> <p>External coupling Excellent concentricity</p>
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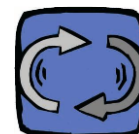


d mm	ds mm	D mm	L mm	B mm	l mm	M mm	T _s Nm	T Nm	F kN
14	10 - 11 - 12	38	14,5	11	9	M 5	3,5	28 - 38 - 50	5 - 7 - 9
16	12 - 13 - 14	41	18,5	15	11	M 5	4	50 - 70 - 90	9 - 10 - 13
18	14 - 15 - 16	44	18,5	15	12	M 5	4	85 - 100 - 130	16 - 18 - 20
20	15 - 16 - 18	50	22,5	19	14	M 5	4	130 - 150 - 200	20 - 22 - 25
24	19 - 20 - 21	50	22,5	19	14	M 5	5	180 - 210 - 250	26 - 27 - 29
30	24 - 25 - 26	60	24,5	21	16	M 5	6	310 - 340 - 380	26 - 27 - 28
36	28 - 30 - 31	72	27	23	18	M 6	12	460 - 590 - 630	50 - 54 - 58
44	32 - 35 - 36	80	29	25	20	M 6	12	630 - 780 - 860	65 - 74 - 77
50	38 - 40 - 42	90	31	27	22	M 6	12	940 - 1100 - 1300	79 - 85 - 90
55	42 - 45 - 48	100	34	30	23	M 6	12	1200 - 1500 - 1900	80 - 90 - 100
62	48 - 50 - 52	110	34	30	23	M 6	12	1800 - 2200 - 2400	100 - 110 - 120
68	50 - 55 - 60	115	34	30	23	M 6	12	2000 - 2500 - 3100	100 - 110 - 120
75	55 - 60 - 65	138	37,5	32	25	M 8	30	2500 - 3200 - 3900	120 - 140 - 150
80	60 - 65 - 70	145	37,5	32	25	M 8	30	3200 - 3900 - 4600	120 - 140 - 160
90	65 - 70 - 75	155	44,5	39	30	M 8	30	4700 - 6000 - 7200	170 - 190 - 210
100	70 - 75 - 80	170	49,5	44	34	M 8	30	6900 - 7500 - 9000	180 - 220 - 240
110	75 - 80 - 85	185	56,5	50	39	M 10	59	7200 - 9000 - 11000	230 - 250 - 260
115	80 - 85 - 90	188	56,5	50	39	M 10	59	8500 - 10000 - 12000	210 - 240 - 270
120	80 - 85 - 90	215	58,5	52	42	M 10	59	10500 - 13200 - 14400	280 - 300 - 330
125	85 - 90 - 95	215	58,5	52	42	M 10	59	11000 - 13000 - 15000	300 - 320 - 350
130	90 - 95 - 100	215	58,5	52	42	M 10	59	13700 - 15800 - 18200	300 - 330 - 360
140	95 - 100 - 105	230	67,5	60	46	M 12	100	15000 - 17000 - 20000	360 - 400 - 420
155	105 - 110 - 115	265	71,5	64	50	M 12	100	20000 - 23000 - 26000	390 - 420 - 450
160	110 - 115 - 120	265	71,5	64	50	M 12	100	22500 - 25500 - 28600	410 - 440 - 470
165	115 - 120 - 125	290	81	71	56	M 16	250	36000 - 39000 - 44000	630 - 660 - 700
170	120 - 125 - 130	290	81	71	56	M 16	250	31700 - 35800 - 40000	600 - 630 - 660
175	125 - 130 - 135	300	81	71	56	M 16	250	40000 - 44000 - 49000	650 - 680 - 720
180	130 - 135 - 140	300	81	71	56	M 16	250	36800 - 42000 - 46000	560 - 620 - 650
185	135 - 140 - 145	330	96	86	71	M 16	250	55000 - 60000 - 65000	815 - 875 - 896
190	140 - 145 - 150	330	96	86	71	M 16	250	53300 - 58500 - 63500	790 - 830 - 870
195	140 - 150 - 155	350	96	86	71	M 16	250	66000 - 76000 - 82000	950 - 1000 - 1100
200	150 - 155 - 160	350	96	86	71	M 16	250	73700 - 79800 - 85800	980 - 1000 - 1070
220	160 - 165 - 170	370	114	104	88	M 16	250	95000 - 102000 - 110000	1200 - 1300 - 1300
240	170 - 180 - 190	405	121,5	109	92	M 20	490	120000 - 140000 - 160000	1500 - 1600 - 1700
250	180 - 190 - 200	405	120,5	108	92	M 20	490	160000 - 180000 - 200000	1600 - 1700 - 1800
260	190 - 200 - 210	430	132,5	120	103	M 20	490	165000 - 185000 - 204000	1760 - 1878 - 2008
280	210 - 220 - 230	460	146,5	134	114	M 20	490	216000 - 245000 - 270000	2085 - 2220 - 2350
300	230 - 240 - 245	485	154,5	142	122	M 20	490	274000 - 296000 - 316000	2430 - 2560 - 2630
320	240 - 250 - 260	520	154,5	142	122	M 20	490	311000 - 340000 - 375000	2640 - 2780 - 2900
330	250 - 260 - 270	520	154,5	142	122	M 20	490	352000 - 385000 - 420000	2800 - 2900 - 3100
340	250 - 260 - 270	570	168,5	156	134	M 20	490	389000 - 422000 - 459000	3115 - 3245 - 3400
350	270 - 280 - 285	580	174,5	162	140	M 20	490	443000 - 480000 - 500000	3275 - 3430 - 3500
360	280 - 290 - 300	590	174,5	162	140	M 20	490	462000 - 500000 - 530000	3300 - 3460 - 3600
380	290 - 300 - 310	645	183	168	144	M 24	840	570000 - 610000 - 660000	3900 - 4070 - 4260
390	300 - 310 - 320	660	183	168	144	M 24	840	625000 - 670000 - 720000	4170 - 4325 - 4500
400	315 - 320 - 330	680	183	168	144	M 24	840	671000 - 695000 - 745000	4270 - 4340 - 4500
420	330 - 340 - 350	690	203	188	164	M 24	840	782000 - 841000 - 902000	4460 - 5000 - 5200
440	340 - 350 - 360	750	217	202	177	M 24	840	805000 - 861000 - 920000	4760 - 4930 - 5120
460	360 - 370 - 380	770	217	202	177	M 24	840	1000000 - 1073000 - 1141000	5560 - 5820 - 6020
480	380 - 390 - 400	800	228	213	188	M 24	840	1175000 - 1250000 - 1312000	6200 - 6450 - 6580
500	400 - 410 - 420	850	230	213	188	M 27	1250	1314000 - 1382000 - 1460000	6570 - 6740 - 7000



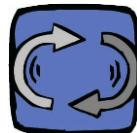
PROBLEMEN, OORZAAK, OPLOSSING

PROBLEEM	OORZAAK	OPLOSSING (1)	OPLOSSING (2)
De motor start niet	a) problemen met de stroomvoorziening. b) Verkeerde bedrading. c) Defecte motor d) Verkeerde motorgrootte	Controleer de motor aansluiting	Vervang de motor
De stroom opname van de elektromotor is te hoog	a) Verkeerde verkeerde motorgrootte b) Defecte motor	Onderzoek de installatie/keuze	Vervang de motor en eventueel de tandwielkast
De motor temperatuur is te hoog	a) Verkeerde motor grootte. b) Defecte motor c) Verkeerde meting van de temperatuur	Onderzoek de installatie/keuze	Vervang de motor en eventueel de tandwielkast
De temperatuur van de tandwielkast is te hoog	a) Verkeerde tandwielkast grootte. b) Verkeerde montage positie c) Onvoldoende smering d) Defect lager	Onderzoek de installatie/keuze	Verbeter de montage positie of het olie niveau Vervang het lager
Het uitgaande toerental is anders dan verwacht	a) Verkeerde reductie verhouding. b) Verkeerde motor polen	a) Controleer de reductie verhouding b) Controleer het polental van de motor	Vervang de tandwielkast en eventueel de motor
Olie lekkage van de assen	a) Defecte afdichting b) Defecte as zitting	a) Vervang de afdichtingen b) Vervang de asafdichtingen en monteer deze in een kleine positie verandering of vervang de as	Stuur de unit terug naar de leverancier
Olie lekkage van de afdichtingen	a) De flenzen zijn niet voldoende gemonteerd b) Defecte afdichtingen of transport schade	a) Zet de flenzen vaster vast b) Vervang de afdichtingen en controleer of de afdichtingsvlakken nog in orde zijn	Stuur de unit terug naar de leverancier
De uitgaande as draait in de verkeerde richting	Verkeerde motor aansluiting	Wissel de aansluiting om van twee stroomdraden	
Tandwiel geluid uit de tandwielkast	Beschadigde tandwielen	Wanneer het geluid niet echt luid is, dan geen probleem in een gegeven situatie	Stuur de unit terug naar de leverancier wanneer het geluid storend is in een gegeven situatie
Ander geluid uit de tandwielkast	Vuil binnen in de tandwielkast	Wanneer het geluid niet echt luid is, dan geen probleem in een gegeven situatie of wanneer het geluid verdwijnt na 3 uur werking van de unit	Stuur de unit terug naar de leverancier wanneer het geluid storend is in een gegeven situatie
Een fluitend geluid uit de tandwielkast	a) Defecte lagers of verkeerd gemonteerd b) Defecte tandwielen. c) Onvoldoende smering	a) Monteer opnieuw of vervang de lagers b) Vervand de tandwielen c) Vul de tandwielkast met het juiste volume olie	Stuur de unit terug naar de leverancier
Vibraties van de elektromotor	Koppeling motor /tandwielkast probleem met uitlijning.	a) Controleer de paralliteit van de motor flens met de tandwielkast flens. Vervang de motor flens b) Controleer de motoras spie en vervang eventueel c) Controleer de motor vibratie	Vervang de motor door een van Motive



TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSES	REMEDY (1)	REMEDY (2)
the motor doesn't start	a) problems in the power supply. b) faulty electrical wiring. c) faulty motor. d) wrong size of the motor	check the connections and the power supply	replace the motor.
the current absorption of the electric motor is too high	a) wrong motor size. b) motor faulty.	check the installation/application	replace the motor and eventually also the gearbox
the temperature of the motor frame is too high	a) wrong motor size. b) motor faulty. c) Wrong evaluation of the surface temperature	check the installation/application	replace the motor and eventually also the gearbox
the temperature of the gearbox housing is too high	a) Wrong gearbox size. b) Wrong mounting position. c) Not enough lubricant d) Defective bearing	check the installation/application	correct the mounting position or the lubricant level replace the bearing
output speed is different from expected	a) wrong reduction ratio. b) wrong motor polarity.	a) verify the reduction ratio. b) verify the motor polarity	replace the gearbox and/or the electric motor
oil leaks from the shafts	a) defective seals. b) seal seats on the shafts	a) replace the seals. b) replace the seals and install them in a very slightly different position or replace the shafts.	send the unit to Motive
oil leaks from the seals	a) flanges are not tightened properly. b) defective seals or damaged during the transport	a) tighten the flanges. b) replace the seals, verifying that the seals seats are perfectly worked.	send the unit to Motive
the output shaft turns in the wrong sense	wrong electric motor wiring	invert the position of the 2 phases of the electrical motor power supply	
cyclical noise in the gearbox	damaged gears	no practical problem if the noise is not important in the specific application.	send the unit to Motive if the noise is important in the specific application
not cyclical noise inside the gearbox	dirty inside the gearbox	no practical problem if the noise is not important in the specific application, or if it disappears after 3 working hours	send the unit to Motive if the noise is important in the specific application
a whistling noise is coming from the gearbox	a) defective bearings or not correctly assembled. b) defective gears. c) not enough lubricant	a) reassemble or replace the bearings b) replace the gears c) put the correct quantity of lubricant	send the unit to Motive
vibrations of the electric motor	coupling geometrical errors	a) check the geometrical tolerances of the electric motor flange. Eventually replace b) check geometry and tolerances of the electric motor shaft key. Eventually replace c) Check the motor vibration	replace the motor with a Motive one.



Su www.motive.it, gebruik het serie nummer op het type plaatje van de tandwielkast, het is mogelijk om het eind test report van iedere unit op te vragen.

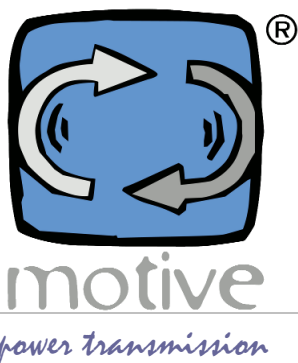
On www.motive.it, using the serial number on the nameplate of the gearbox, it is possible to download the Final Test Report of each unit.



Motive neemt garantie aanspraken in behandeling wanneer deze vallen binnen de garantie verplichtingen zoals vastgelegd in de bepalingen (zie hiertoe de Motive catalogus), alleen wanneer alle voorschriften ten aanzien van opslag,voorziening , in bedrijfsname en gebruik in acht zijn genomen.

Klachten dienen vergezeld te gaan met opgave van het serie nummer en alle noodzakelijke informatie en klacht.

Motive takes into consideration customer's reclamation claims in the frame of the term of guarantee obligations (see Motive catalogue), only if all prescribed conditions for storage, preparation, putting into operation and use are observed. Eventual complaints shall be accompanied by the information of the product serial number and any relevant information and evidence.



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