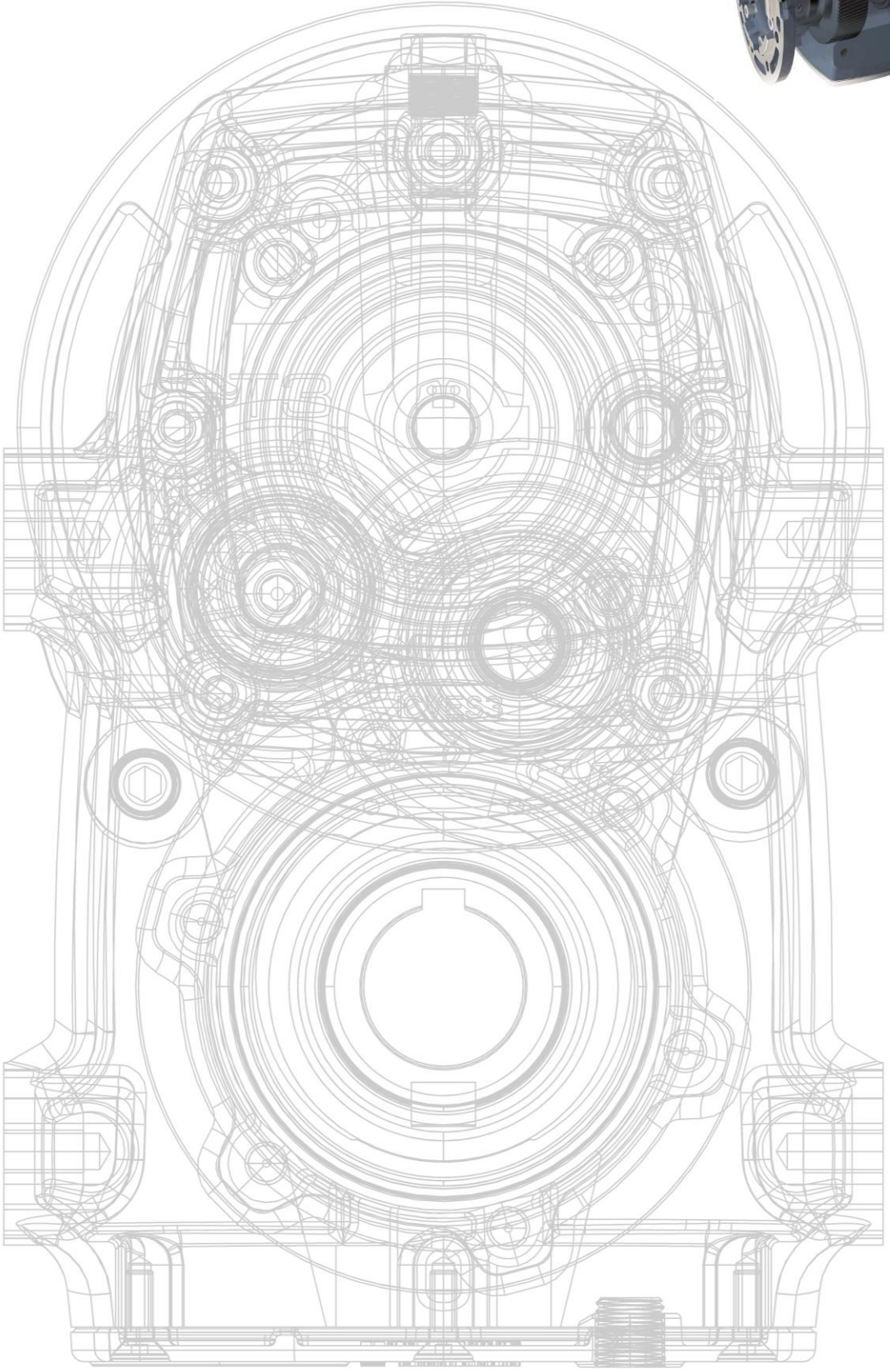
STON

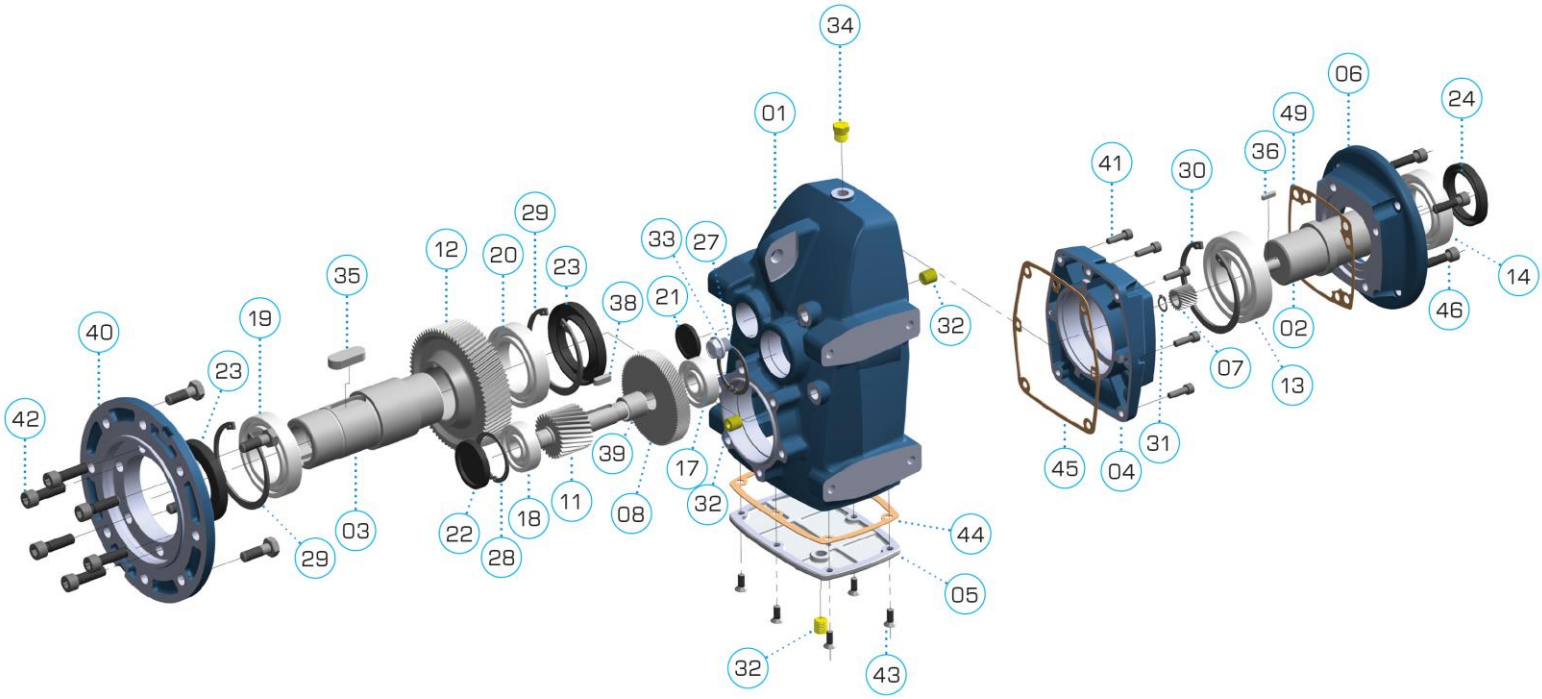
Vlakke motorreductoren
Shaft mounted gearboxes

Gebruiksaanwijzing

Operation and maintenance manual

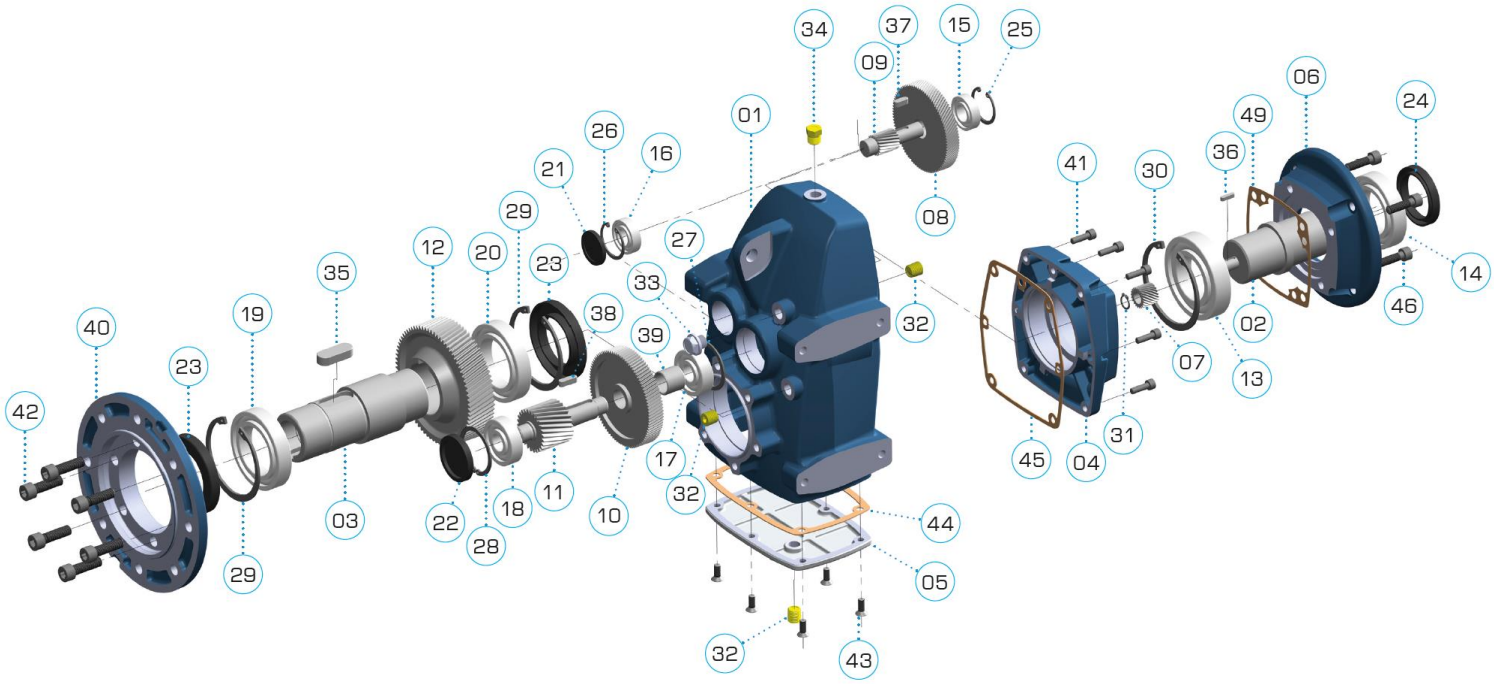


ONDERDELENLIJST (2 TRAPS) – *COMPONENTS LIST (2 STAGES)*



		STON 3		STON 4		STON 5		STON7		STON8		STON9	
art.	code	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty
1	HOUST..	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1
2	ISHDM...ID...	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1
3	OSHST..	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1
4	ICVES..	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1
5	TCVES..	adapter cover	1	adapter cover	1	adapter cover	1	adapter cover	1	adapter cover	1	adapter cover	1
6	IFL...	Input flange 63B5	1										
		Input flange 71B5		Input flange 71B5	1	Input flange 71B5	1						
		Input flange 80/90B5		Input flange 80/90B5		Input flange 80/90B5		Input flange 80/90B5	1	Input flange 80/90B5	1		
		Input flange 100/112B5		Input flange 100/112B5		Input flange 100/112B5		Input flange 100/112B5		Input flange 100/112B5		Input flange 100/112B5	1
								Input flange 132B5		Input flange 132B5		Input flange 132B5	
										Input flange 160/180B5		Input flange 160/180B5	
												Input flange 200B5	
7	P1...	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1
8	G1...	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1
11	P3...ST...	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1
12	G3...ST...	gear third stage	1	gear third stage	1	gear third stage	1	gear third stage	1	gear third stage	1	gear third stage	1
13	BEA...	bearing 6008 ZZ	1	bearing 6009 ZZ	1	bearing 6009 ZZ	1	bearing 6211 ZZ	1	bearing 6213ZZ-C3 (IFL90-112) bearing 6009ZZ-C3 (IFL132-180)	1	bearing 6216 ZZ	1
14	BEA...	bearing 6008 ZZ	1	bearing 6009 ZZ	1	bearing 6009 ZZ	1	bearing 6210 ZZ	1	bearing 6213ZZ-C3 (IFL90-112) bearing 6009ZZ-C3 (IFL132-180)	1	bearing 6215 ZZ	1
17	BEA...	bearing 7202 ZZ	1	bearing 7303 ZZ	1	bearing 7304 ZZ	1	bearing 30304	1	bearing 30306	1	bearing 30307	1
18	BEA...	bearing 7302 ZZ	1	bearing 7303 ZZ	1	bearing 7304 ZZ	1	bearing 32206	1	bearing 30308	1	bearing 32208	1
19	BEA...	bearing 6009 ZZ	1	bearing 6010 ZZ	1	bearing 6211 ZZ	1	bearing 6014 ZZ	1	bearing 6017 ZZ	1	bearing 6219 ZZ	1
20	BEA...	bearing 6009 ZZ	1	bearing 6010 ZZ	1	bearing 6211 ZZ	1	bearing 6014 ZZ	1	bearing 6017 ZZ	1	bearing 6219 ZZ	1
21	COVD...	plug seal D35X5	1	plug seal D35X5	1	plug seal BOX40 40x7	1	plug seal D52X7	1	plug seal D72X12	1	plug seal D72X12	1
22	COVD...	plug seal D42X6	1	plug seal D47X7	1	plug seal D52x7	1	plug seal D62X7	1	plug seal D90X10	1	plug seal D80X10	1
23	OS...	oil seal 45X75X8	2	oil seal 50X80X10	2	oil seal 55X100X10	2	oil seal 70X110X12	2	oil seal 85X130X12	2	oil seal 95X170X12	2
24	OS...	oil seal 40X55X8	1	oil seal 45X60X9	1	oil seal 45X60X9	1	oil seal 55X80X10	1	oil seal 45X65X10 (IFL80-112) oil seal 65X90X12 (IFL132-180)	1	oil seal 80X105X13	1
32	FPL...	filler plug 1/4"	3	filler plug 1/4"	3	filler plug 1/4"	3	filler plug 1/4"	3	filler plug 1/4"	3	filler plug 1/4"	3
33	LPL...	level plug 1/4"	1	level plug 1/4"	1	level plug 1/4"	1	level plug 1/4"	1	level plug 1/4"	1	level plug 1/4"	1
34	BPL...	breather plug 1/4"	1	breather plug 1/4"	1	breather plug 1/4"	1	breather plug 1/4"	1	breather plug 1/4"	1	breather plug 1/4"	1
39	SPR39ST...	spacer ST3-2	1	spacer ST4-2	1	spacer ST5-2	1	spacer ST7-2	1	spacer ST8-2	1	spacer ST9-2	1
40	OFL...ES...	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1	output flange	1
44	GK44ES...	adapter cover gasket	1	adapter cover gasket	1	adapter cover gasket	1	adapter cover gasket	1	adapter cover gasket	1	adapter cover gasket	1
45	GK45ES...	input cover gasket	1	input cover gasket	1	input cover gasket	1	input cover gasket	1	input cover gasket	1	input cover gasket	1
49	GK49RB...	input flange gasket	1	input flange gasket	1	input flange gasket	1	input flange gasket	1	input flange gasket	1	input flange gasket	1

ONDERDELENLIJST (3 TRAPS) – *COMPONENTS LIST (3 STAGES)*



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7	P1...	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1	pinion first stage	1
8	G1...	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1	gear first stage	1
9	P2...	pinion second stage	1	pinion second stage	1	pinion second stage	1	pinion second stage	1	pinion second stage	1	pinion second stage	1
10	G2...	gear second stage	1	gear second stage	1	gear second stage	1	gear second stage	1	gear second stage	1	gear second stage	1
11	P3...ST...	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1	pinion third stage	1
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15	BEA...	bearing 6002 ZZ	1	bearing 6003 ZZ	1	bearing 6203 ZZ	1	bearing 6304 ZZ	1	bearing 6206 ZZ	1	bearing 6207 ZZ	1
16	BEA...	bearing 6202 ZZ	1	bearing 6003 ZZ	1	bearing 6203 ZZ	1	bearing 6304 ZZ	1	bearing 6304 ZZ	1	bearing 6207 ZZ	1
17	BEA...	bearing 6202 ZZ	1	bearing 6303 ZZ	1	bearing 6304 ZZ	1	bearing 30304	1	bearing 30306	1	bearing 30307	1
18	BEA...	bearing 6302 ZZ	1	bearing 6303 ZZ	1	bearing 6304 ZZ	1	bearing 32206	1	bearing 30308	1	bearing 32208	1
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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 ≥ 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 ≥ 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 opppervlakten , 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 STON eenheid correct gemonteerd is om vibraties te voorkomen.
- Als schokken of overbelasting denkbaar zijn zou een hydraulische koppeling, een schakel koppeling, electronsiche 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 hoeveeldheid 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 alternative kan een hoog viskeuze op oliebasis gebaseerd vet worden gebruikt. (Bijvoorbeeld Mobilgrease XTC)
- Waneer er externe krachten kunnen onstaan 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 tapgaten.
- Voor een gelijkmatige en geluidsarme werking van de motor bevelen wij het gebruik van Motive motoren aan.

INSTALLATION

- Make sure that the STON 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 STON 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

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.

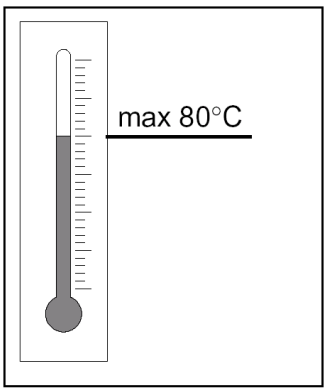
- Wanneer er een 2 polige motor (ingaand toerental circa 2800 toeren/min) gebruikt wordt, kunnen er een paar extra attentie punten ontstaan, zoals de temperatuur binnen in de kast, het vibratie niveau en het geluid. Als algemene regel houden wij aan dat wormwiel tandwielkasten met een 2 polige motor 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

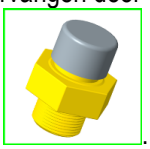
When it is necessary to fill the oil but there is no compatibility of the new oil with the one inside the gearbox, we suggest to empty the gearbox from its oil and wash it before putting the new oil

SMERING – *LUBRICATION*

STON	Olie - *Oil quantity (lt)*						ISO	Temp.	Olie type – *Oil type*	
	B3	B6	B7	B8	V5	V6				
STON 3	1,05	1,10	1,10	0,95	1,25	1,50	VG 220	-25 +80°C	Fuchs Renolin PG	Shell Omala S4 WE
STON 4	1,90	1,75	1,75	1,65	2,20	2,55				
STON 5	2,20	2,10	2,10	2,00	3,00	3,50				
STON 7	4,80	4,40	4,60	4,30	8,00	7,70				
STON 8	9,30	8,30	8,60	7,80	14,90	13,80				
STON 9	20,60	17,00	16,40	13,60	27,10	26,70				

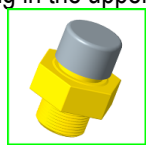
Tenzij iets anders gespecificeerd, wordt iedere STON voorzien van een lange levensduur synthetische olie (hoeveelheid als nodig voor positie B3).
Na een eventuele bijvulling kan iedere STON in welke positie dan ook gemonteerd worden, waardoor een groot voordeel ontstaat wat betreft voorraad vorming en 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

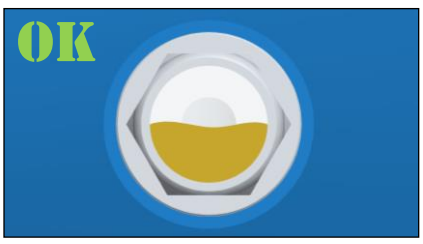
Ontluchtingsplug  .

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.

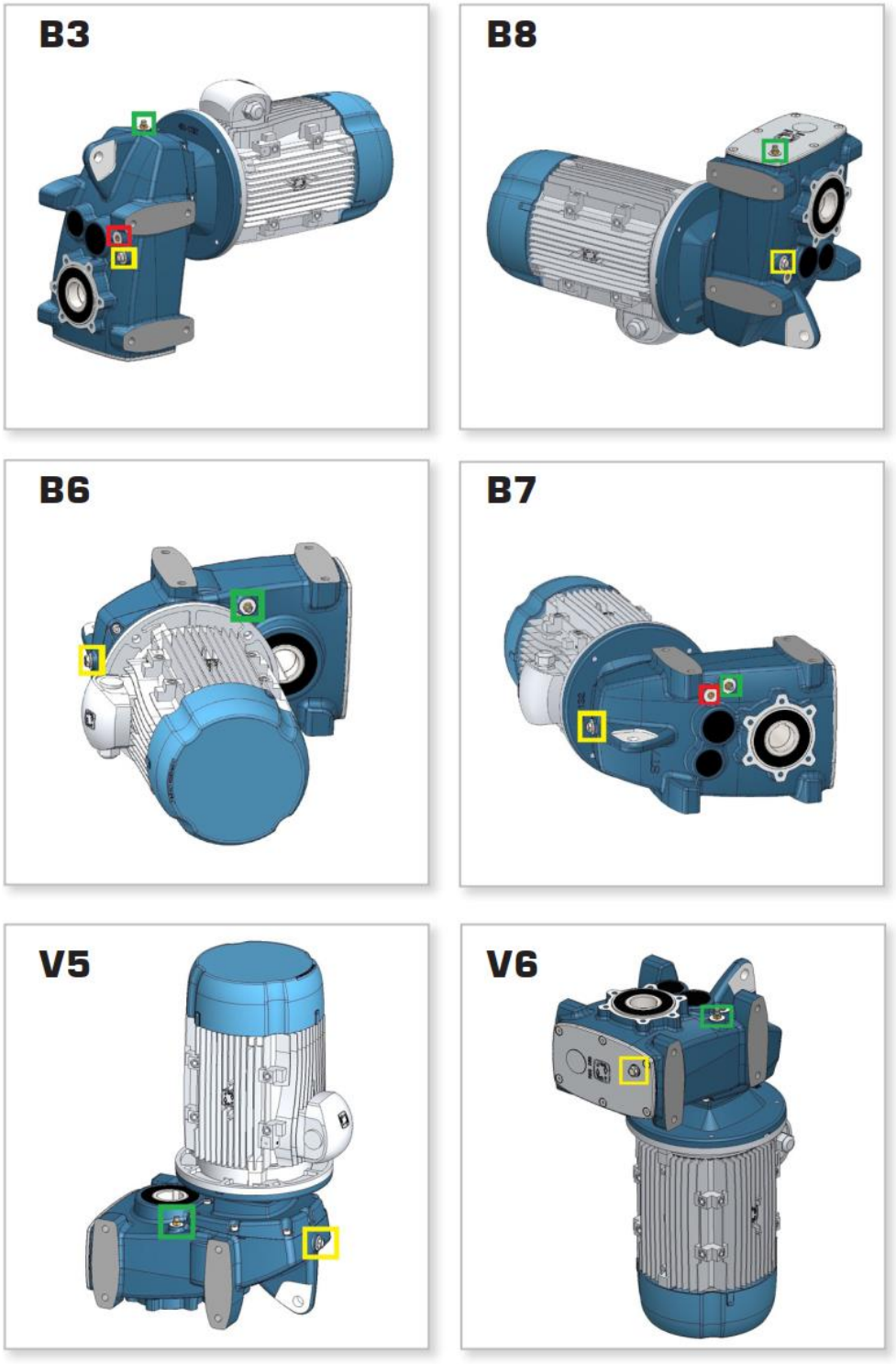
Unless otherwise specified, each STON is supplied long-life synthetic oil (quantity as per position B3).
After an eventual oil addition, each STON can be mounted in any mounting position, thus giving big advantages in the stock management and lead time

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 pressure breather plug  .

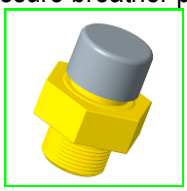
Level plugs, correctly positioned as per following tablechart, are a useful reference for the verification of the correct oil quantity.



MONTAGE POSITIES – *MOUNTING POSITIONS*

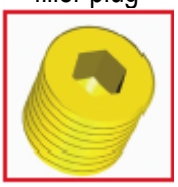


Ontluchtingsplug
pressure breather plug



niveau schroef
level plug

vulschroef
filler plug

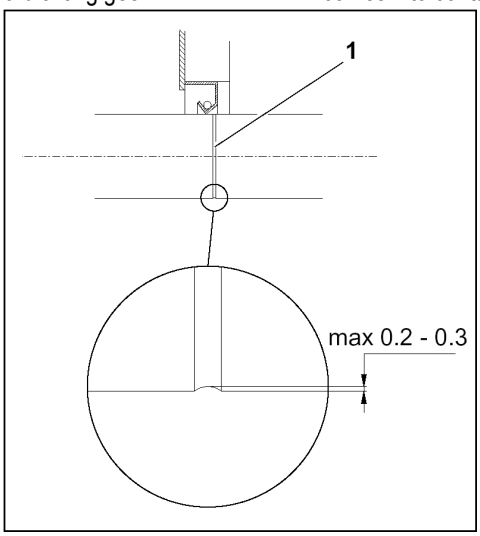


VERVANGING VAN OLIE KERINGEN

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 nieuw 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 opervlakte 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 geverfd 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 ware, 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 BOX om te vormen in een BOX+as

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.

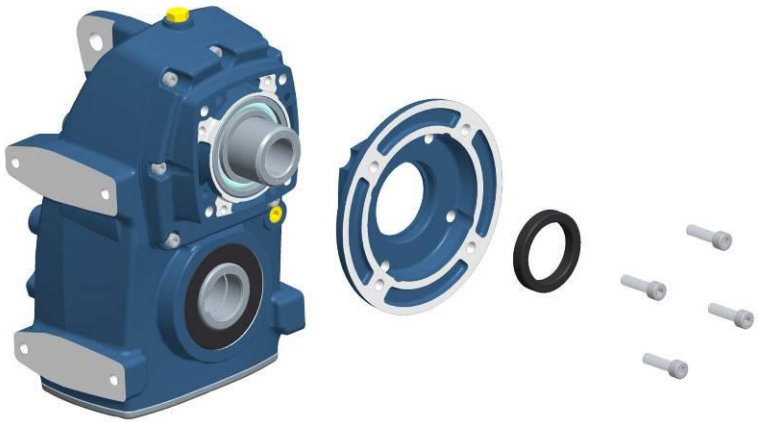
“MF KIT”

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

1



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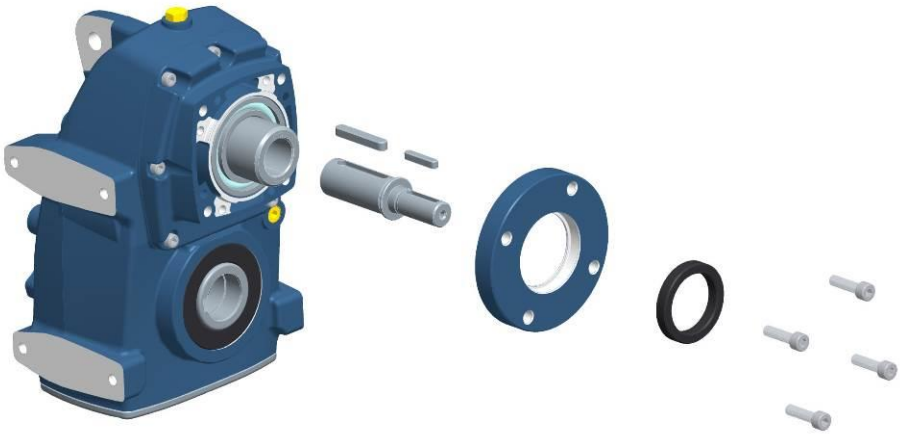

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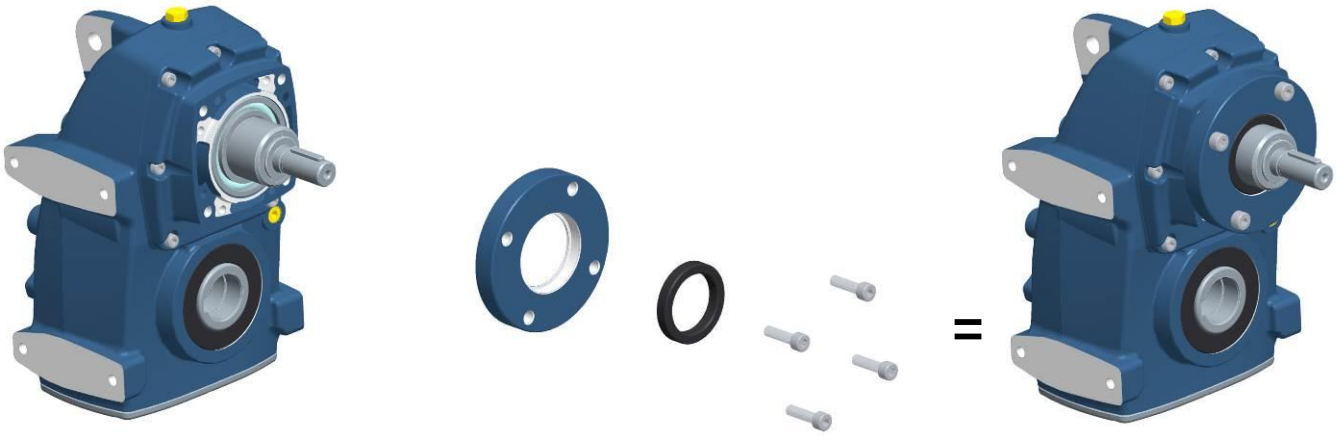
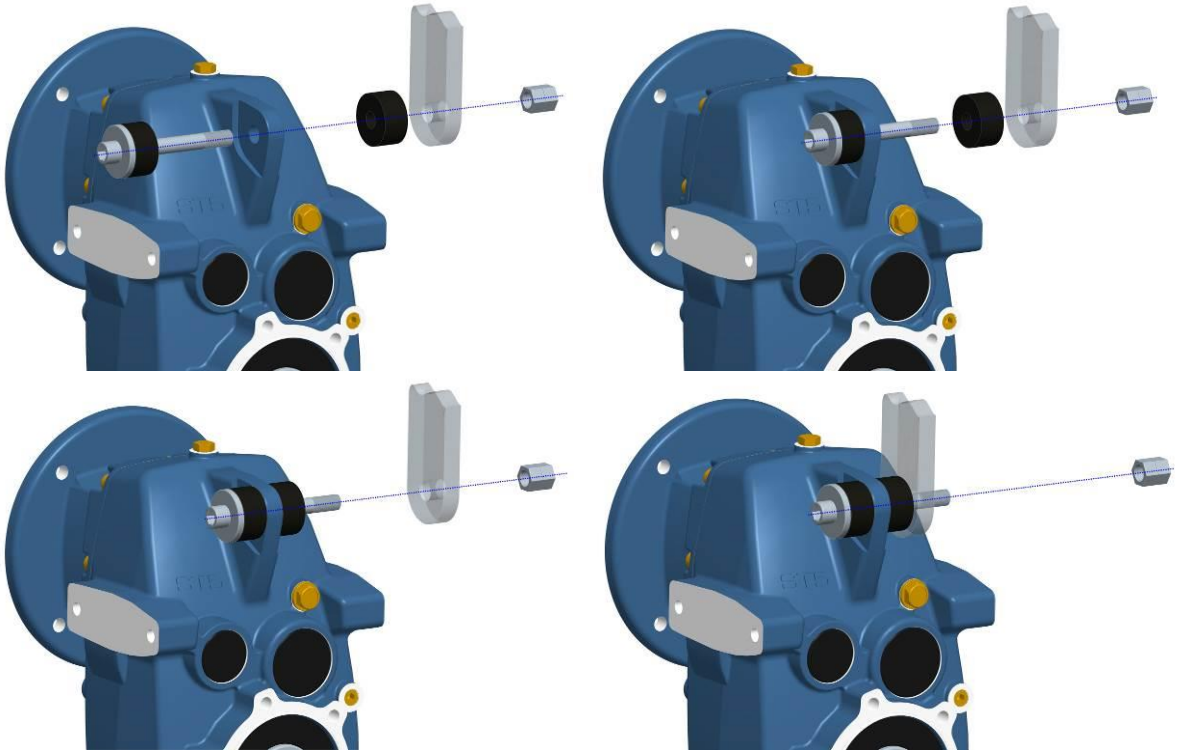


TORQUE ARM

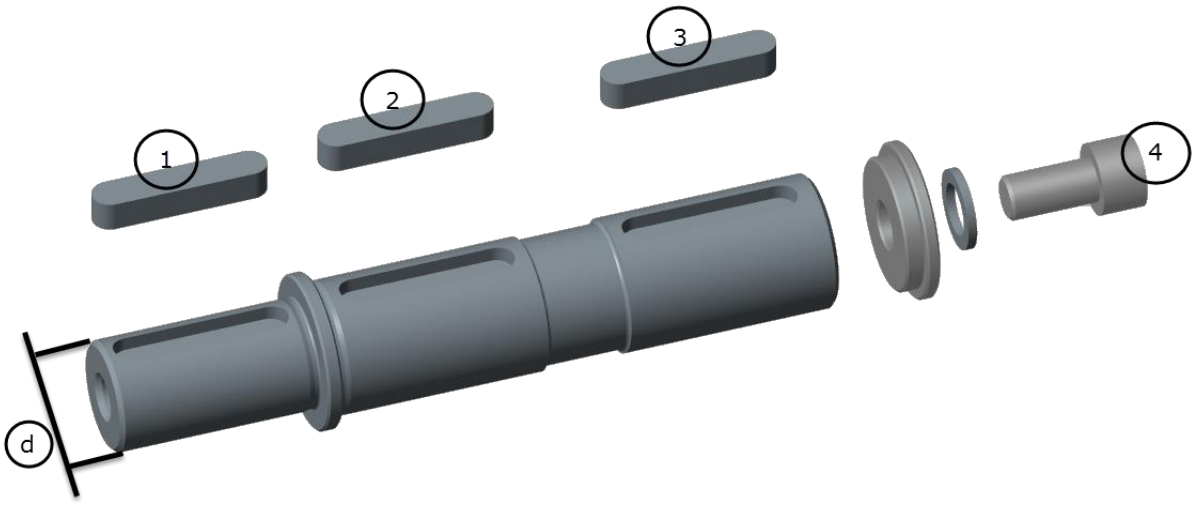
The dimensions in mm are written in the catalogue.

The lever is not supplied in the kit, due to its variable length

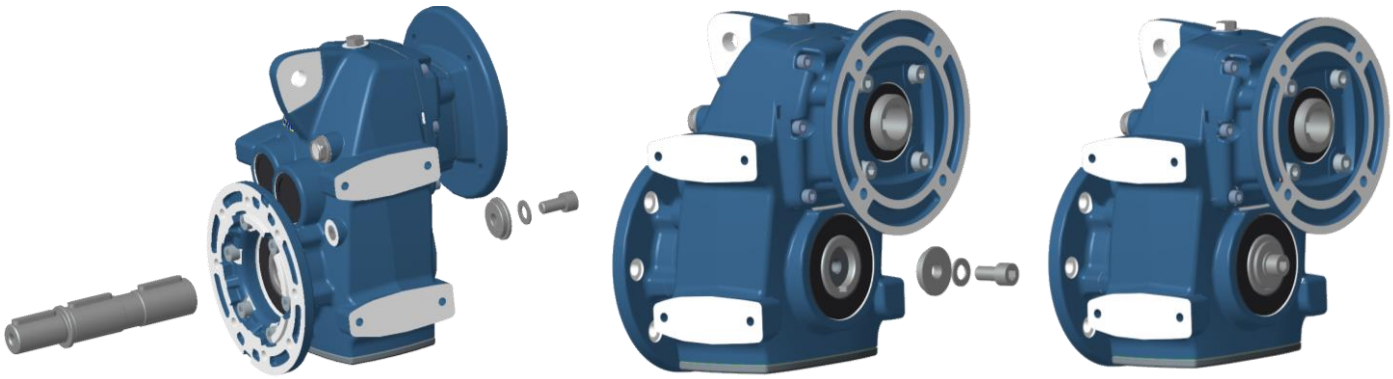


"SOS" SINGLE OUTPUT SHAFT

Designed to avoid its axial movement



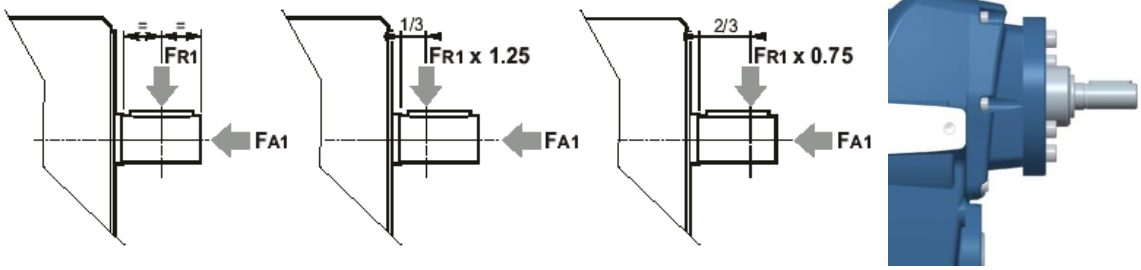
	d	①	②	③	④
STON3	25	8X7X40	8X7X40	8X7X40	M10X20
STON3	30	8X7X50	8X7X40	8X7X40	M10X20
STON4	30	8X7X50	10X8X50	10X8X50	M10X20
STON4	35	10X8X60	10X8X50	10X8X50	M10X20
STON5	35	10X8X56	12X8X56	12X8X56	M10X20
STON5	40	12X8X70	12X8X56	12X8X56	M10X20
STON7	50	14X9X80	14X9X65	14X9X65	M10X25
STON8	60	18X11X110	18X11X80	18X11X80	M12X50
STON9	70	20X12X100	20X12X125	20X12X125	M16X50



Max FR1 (bij 0Kg FA1) - STON-MF

STON-3	STON-4	STON-5	STON-7	STON-8	STON-9
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
64	71	75	122	333	410

entrata
input
Antrieb

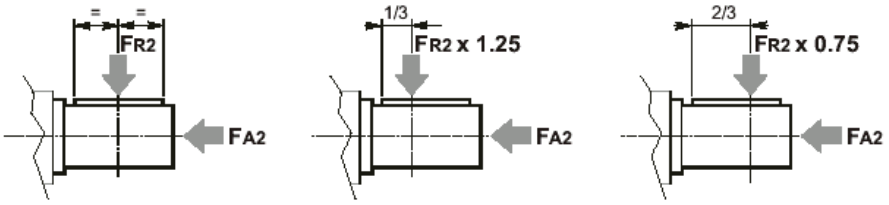


Max axial load F_A [kg] (with radial load F_R= 0), with standard output shaft bearings

	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
2,5											1480		2,5
3			246						637				3
3,5					358		510				1708		3,5
4	212		251		373		531		669		1719		4
4,5	213		263		398						1864		4,5
5	202		249		392		548		745		1926		5
5,5	215		259				559						5,5
6	199		295		417				795		1957		6
6,5	197		274						744				6,5
7	201		313		451		609				2130		7
8	147		315		463		616		808		2195		8
9	177		247		492				726				9
10	167		298		501		616				2301		10
11							567		690		2367		11
12	120		199		521		530				2706		12
13	115		185							701		2427	13
14					552		593		750		2804	2526	14
15	481		150		551				591				15
16	471	292	342	140			565		686	623		2480	16
17	471				555					576		2570	17
18		262	323	334	564		537		764			2629	18
19	487									657			19
20		248	404	372	566	589	504		895			2632	20
21	498				557		638		838	605		2668	21
22		389	474	442			549			440			22
23			488	345		585			848	338		2680	23
24		407	540	336		659	720	624					24
25		383		326	631								25
26				273				589		710		2642	26
27		444				680	687			832			27
28				295		659		774				2632	28
29										793		2664	29
30		440		454		752							30
31				481		773		745				2637	31
32										879			32
33						775		732		1128		3202	33
34		521		463		758		1028		1152			34
35								955		1261		3169	35
36				449		760				1130			36
37													37
38		517				783		1011		1116		3182	38
39												3175	39
40		494		427				1002		1051			40
41				415		761				1212			41
42		631				867						3153	42
43		629		617				1067		1054		3109	43
44						872							44
45		635						1059		1172		3089	45

	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
46				610		895							46
47		633				896				991			47
48								1045		933		3090	48
49		630		602		901						3072	49
50						882		1032		906			50
51		614				882		1215					51
52						883				1336		3848	52
53				587								3879	53
54		638				908		1207		1168			54
55										1162		3849	55
56				736		959		1205		1101		3849	56
57				735		962		1201		1090		3880	57
58		610						1198		1083			58
59													59
60				809		968				1534		3844	60
61		793										3876	61
62				730		948		1184		1345		3874	62
63		770										3834	63
64								1413					64
65		769		726		1060				1511			65
66		794								1310		3862	66
67		806		817				1413					67
68						1059							68
69		806		816		1060							69
70		793		718		1063		1337		1481		3845	70
71		777						1336		1477			71
72		765		713		1076		1410		1265			72
73		775				1047		1409					73
74												4510	74
75		900											75
76								1406					76
77						1077				1676		4484	77
78		760		701						1673			78
79				894									79
80		917				1080		1401					80
81		904		895				1574				4837	81
82						1188		1639		1831		4839	82
83				975				1575					83
84		920		976		1194						4881	84
85				970		1088						4883	85
86		922						1642		1637			86
87				895								4862	87
88		907		895									88
89													89
90		935		981		1295		1576		1811		4905	90
91								1647		1616			91
92													92
93		925										4884	93
94				893									94

uscita
output
Abtrieb



	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
95				984		1318							95
96		942										4925	96
97								1650					97
98				985				1650					98
99				891		1322				1718			99
100		927								1714		5300	100
101						1335							101
102				979								5345	102
103		1086						1571				5349	103
104													104
105		1088		988						2172			105
106				887						2172			106
107		1096											107
108						1355							108
109		1094						1696					109
110												5386	110
111								1696					111
112		1098											112
113												5399	113
114				989									114
115										1988			115
116		1106										5926	116
117										1986			117
118						1381							118
119				989									119
120		1108						1695				5983	120
121													121
122													122
123		1116											123
124													124
125								1693					125
126													126
127				987									127
128		1120										6044	128
129													129
130		1119											130
131													131
132													132
133		1127											133
134													134
135													135
136													136
137													137
138		1129											138
139													139
140													140

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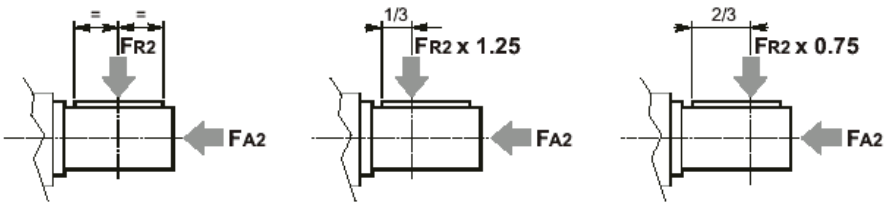
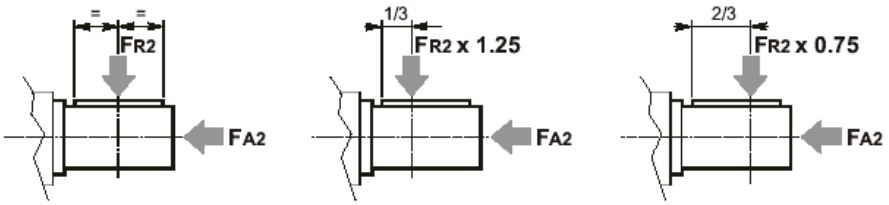
output
Abtrieb



Max radial load F_R [kg] (with axial load F_A= 0), with standard output shaft bearings

	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
2,5											1243		2,5
3			194						478				3
3,5					339		378				1362		3,5
4	147		193		350		385		487		1386		4
4,5	144		199		365						1458		4,5
5	133		189		359		398		520		1494		5
5,5	140		194				401						5,5
6	128		198		373				531		1508		6
6,5	122		201						524				6,5
7	122		205		389		416				1602		7
8	122		203		398		412		512		1635		8
9	146		178		411				493				9
10	169		181		411		403				1678		10
11							391		453		1706		11
12	159		139		416		353				1891		12
13	129		128							417		1707	13
14					424		367		407		1929	1760	14
15	278		100		418				355				15
16	269	159	191	92			335		606,1	333		1711	16
17	267				415					285		1755	17
18		134	171	179	421		306		578			1769	18
19	269									285			19
20		118	352	235	416	297	274		552			1742	20
21	271				606		361		549	226		1756	21
22		205	431	240			345			145			22
23			446	213		286			503	114		1743	23
24		209	641	206		339	443	341					24
25		195		198	706								25
26				166				307		278		1679	26
27		223				349	415			422			27
28				174		663		419				1657	28
29										382		1661	29
30		212		261		332							30
31				279		409		390				1634	31
32										368			32
33						409		377		637		2051	33
34		270		264		394		554		608			34
35								547		639		2022	35
36				252		392				580			36
37													37
38		262				406		532		564		2018	38
39												2010	39
40		240		235				522		562			40
41				225		386				571			41
42		345				462						1984	42
43		341		368				566		497		1948	43
44						463							44
45		344						556		521		1928	45

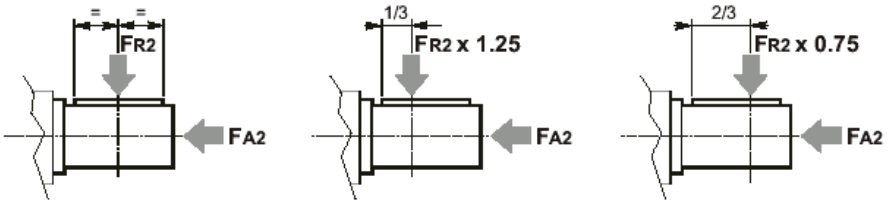
uscita
output
Abtrieb



Max radial load F_R [kg] (with axial load F_A= 0), with standard output shaft bearings

	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
46				361		477							46
47		341				477				432			47
48								539		450		1918	48
49		337		354		478						1900	49
50						462		525		425			50
51		322				462		663					51
52						461				639		2478	52
53				341								2499	53
54		337				477		652		561			54
55										554		2472	55
56				446		513		648		568		2470	56
57				445		513		642		558		2489	57
58		313						639		551			58
59													59
60				455		514				784		2457	60
61		449										2477	61
62				439		497		622		751		2475	62
63		430										2441	63
64								794					64
65		428		435		577				750			65
66		445								716		2434	66
67		454		454				789					67
68						573							68
69		452		452		573							69
70		442		428		574		783		709		2434	70
71		430						782		705			71
72		420		423		582		781		673			72
73		426				560		779					73
74												2921	74
75		520											75
76								772					76
77						577				985		2899	77
78		411		413						982			78
79				548									79
80		528				577		763					80
81		519		548				941				3152	81
82						655		940		980		3153	82
83				566				941					83
84		528		566		657						3180	84
85				560		578						3181	85
86		528						939		944			86
87				546								3162	87
88		517		546									88
89													89
90		536		565		726		937		945		3189	90
91								936		922			91
92													92
93		526										3168	93
94				543									94

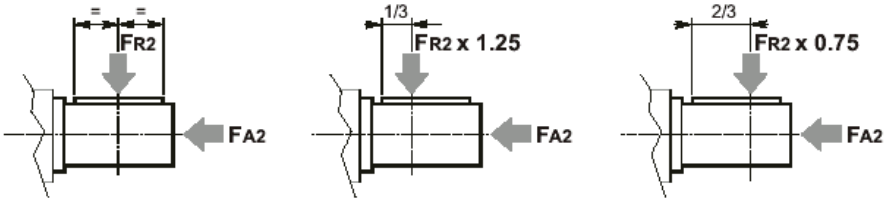
uscita
output
Abtrieb



Max radial load F_R [kg] (with axial load F_A= 0), with standard output shaft bearings

	STON 3		STON 4		STON 5		STON 7		STON 8		STON 9		
	2	3	2	3	2	3	2	3	2	3	2	3	
95				564		738							95
96		538										3194	96
97								932					97
98				562				930					98
99				540		738				991			99
100		523								987		3466	100
101						747							101
102				554								3495	102
103		642						925				3497	103
104													104
105		643		559						1222			105
106				535						1219			106
107		646											107
108						756							108
109		645						1010					109
110												3512	110
111								1009					111
112		647											112
113												3519	113
114				554									114
115										1181			115
116		651										3904	116
117										1178			117
118						768							118
119				550									119
120		650						1003				3941	120
121													121
122													122
123		654											123
124													124
125								999					125
126													126
127				543									127
128		655										3975	128
129													129
130		653											130
131													131
132													132
133		656											133
134													134
135													135
136													136
137													137
138		657											138
139													139
140													140

uscita
output
Abtrieb



.LIMITATORI DI COPPIA

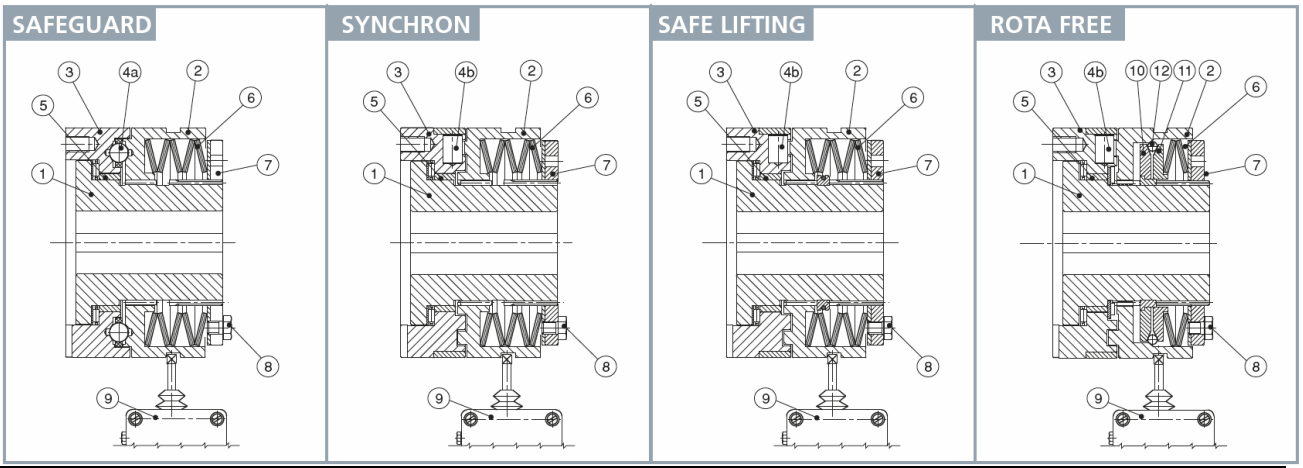
Limitatori di coppia serie standard
con regolazione della coppia di intervento
SAFEGUARD-SYNCHRON-SAFELIFTING-ROTA FREE

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 pretarato 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 pretarato 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

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 activitate 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-engangement 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.

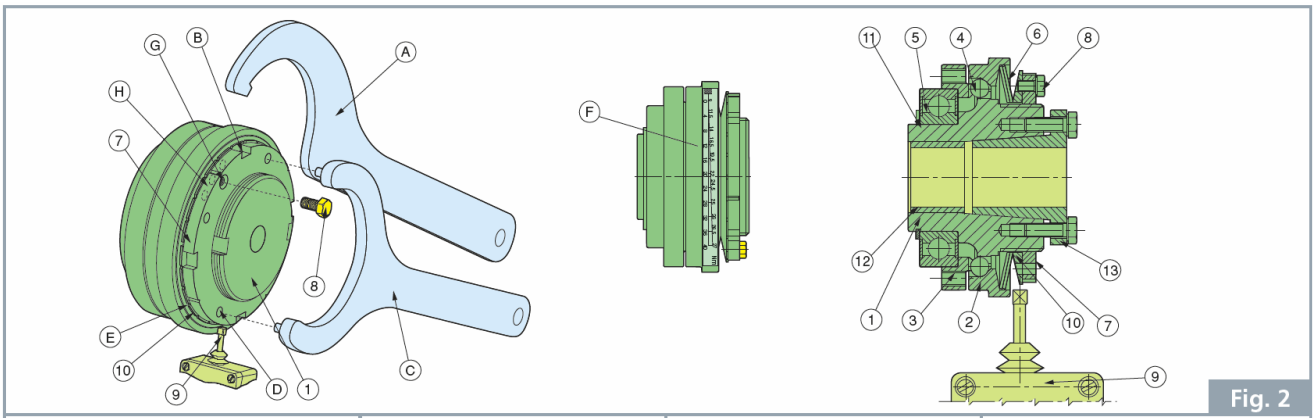


Fig. 2

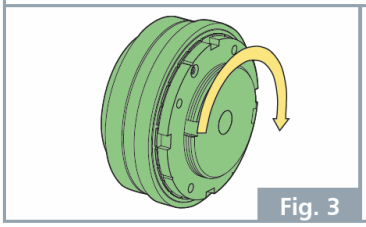


Fig. 3

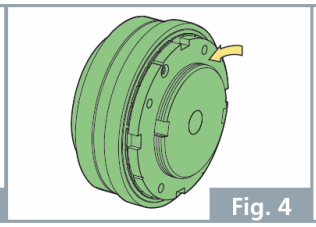


Fig. 4

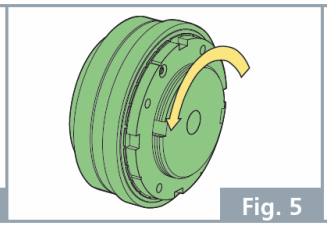


Fig. 5

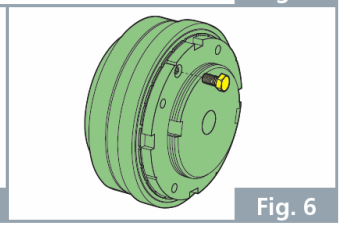
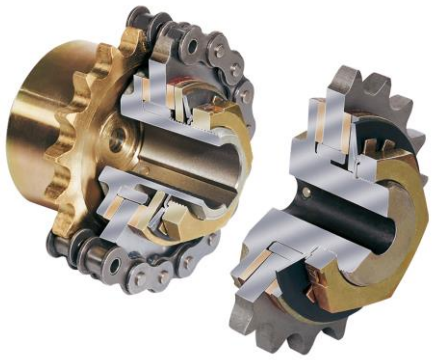


Fig. 6

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

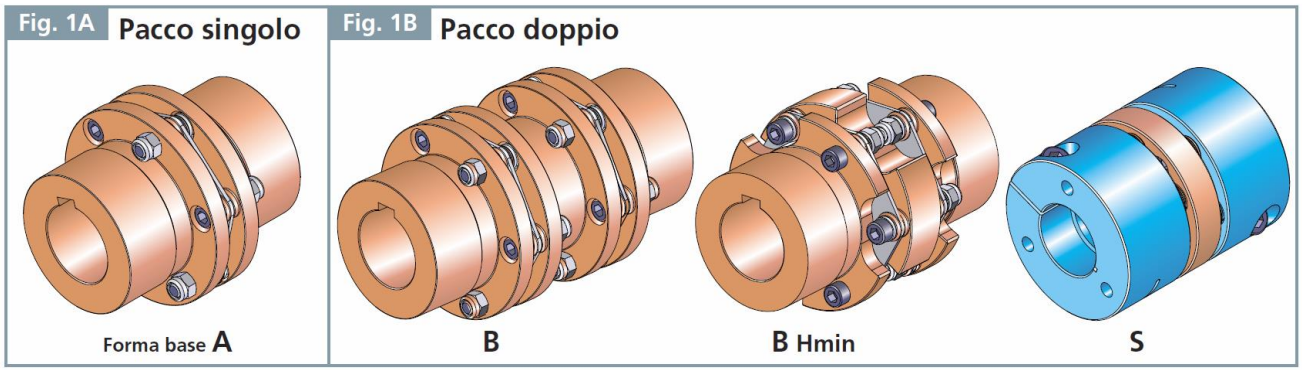
SECUREX Limitatori di coppia a strisciamento con regolazione della coppia di intervento	SECUREX Friction torque limiters with torque adjustment
Il limitatore di coppia Securex agisce come una protezione dai sovraccarichi in azionamenti che impiegano ingranaggi o pulegge. Si tratta di un dispositivo di 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.	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.

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



.GIUNTI	COUPLINGS

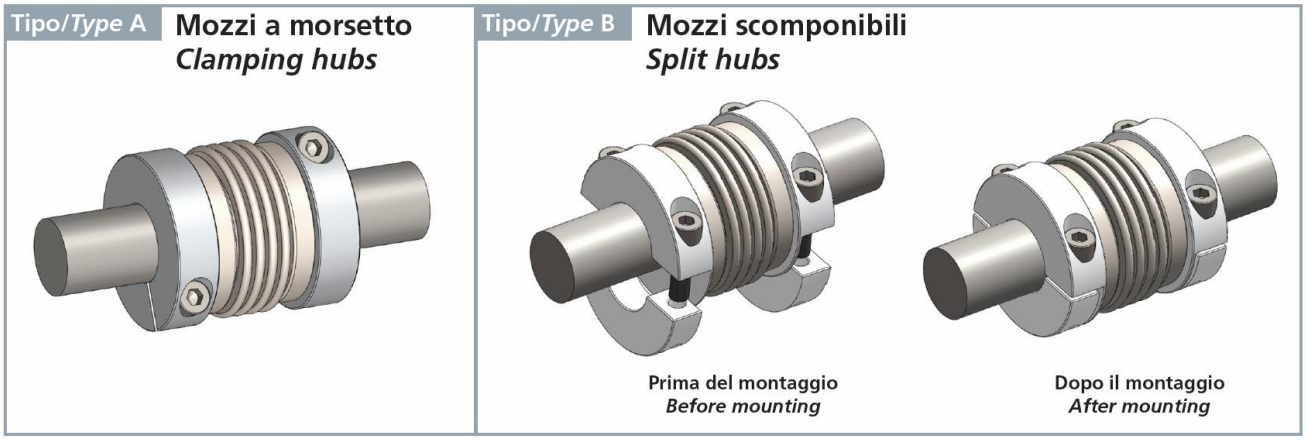
FLEXSTEEL-Giunti lamellari	FLEXSTEEL-Lamellar couplings
Flexsteel è un giunto a gioco zero che impiega come elemento di trasmissione un pacco di lamelle in acciaio inossidabile, torsionalmente rigido, ma assialmente e angolarmente flessibile, per compensare disallineamenti fra due alberi; due mozzi metallici sono collegati al pacco lamellare da boccole di precisione e viti ad alta resistenza.	Flexsteel is a zero backlash coupling which uses a disc pack made of stainless spring steel as a drive element, torsionally stiff, but axially and angulary flexible, to compensate shafts misalignments. Two metal hubs are connected to the discs pack by micrometric precision bushings and highly resistant screws.



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-Bellow couplings

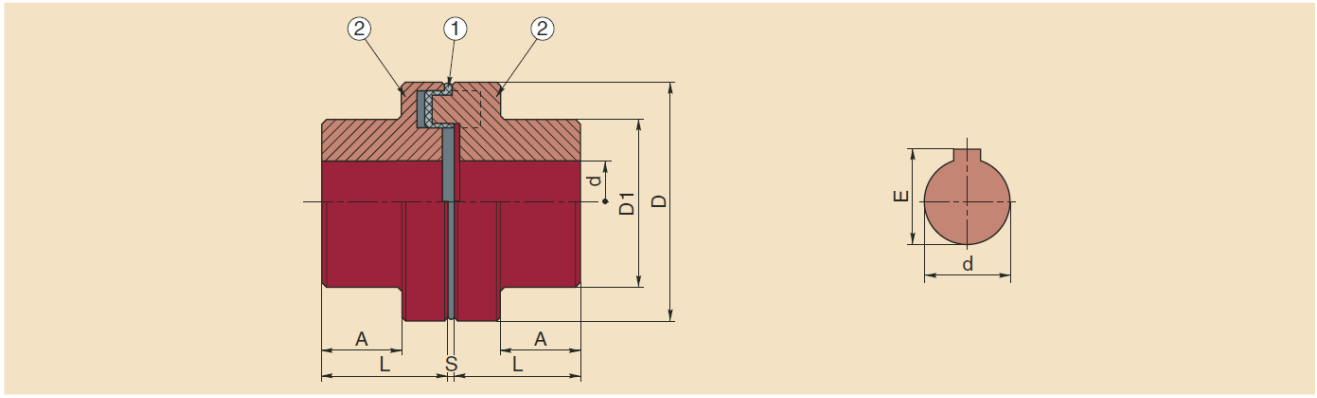
METALFLEX è un giunto altamente innovativo, ideale per applicazioni ad alte prestazioni che richiedano ripetibilità, posizionamenti precisi, controllo dei movimenti e dei sincronismi, alte velocità. METALFLEX è composto da due mozzi di alluminio con bloccaggio a morsetto, collegati da una speciale molla in acciaio inossidabile a parete sottile, che rimane rigida sotto carico torsionale, ma è fl essibile 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 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 fl exible 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.



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

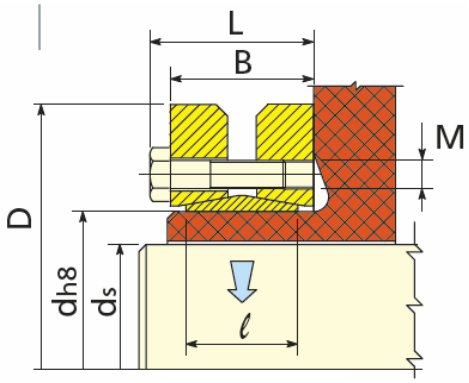
COMPOLASTIC-Giunti elastici	**COMPOLASTIC-Elastic couplings**

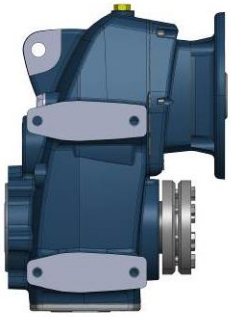
COMPOLASTIC é una serie di giunti composti da due corone dentate in ghisa G25 accuratamente lavorate all'utensile i cui denti lavorano unicamente a compressione su un elemento elastico . Il particolare e nuovo disegno dell'elemento elastico garantisce una trasmissione del moto con caratteristiche di 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, angolari, 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 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

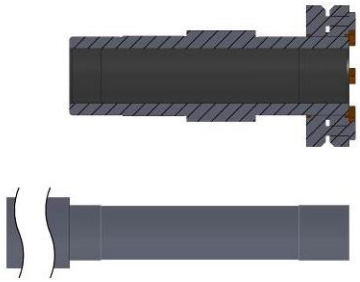


Coppie trasmissibili	min.	19 Nm	Diametri fori disponibili	min.	8 mm
Transmissible torque	max.	2000 Nm	Hole diameters available	max.	100 mm

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







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 tandwiel kast 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 katalogus), alleen wanner 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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