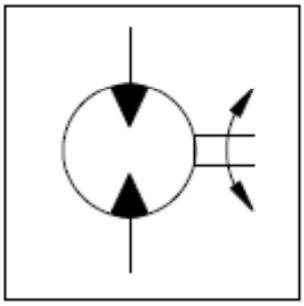
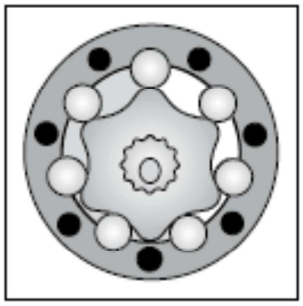
Performance

Series TF

Drehzahl Speed Vitesse de rotation Velocità di rotazione	5...750 rev/min
Schluckstrom Oil flow Débit d'huile Portata	max. 100 l/min
Eingangsdruck Supply pressure Pression entrée Pressione in entrata	max. 300 bar
Drehmoment Torque Couple Coppia	max. 900 Nm
Seitenlast Side load Charges latérales Carico radiale	max. 16.000 N





Motor series TF	Geom. Schluckvolumen Geometric displacement Cylindrée Cilindrata [cm³/U] [cm³/rev]	Max. Drehzahl Max. speed Vitesse de rotation maxi Velocità di rotazione max cont / int [U/min] [rev/min]	Max. Schluckstrom Max. oil flow Débit d'huile maxi Portata max cont / int [l/min]	Max. Druckdifferenz * Max. differential pressure * Chute de pression maxi * Caduta di pressione max * cont / int [bar]	Max. Eingangsdruck Max. supply pressure Pression maxi entrée Pressione max in entrata max [bar]	Max. Drehmoment Max. torque Couple maxi Coppia max cont / int [Nm]	Max. Leistungsabgabe Max. performance Puissance de sortie maxi Potenza meccanica max cont / int [KW]	Min. Anlaufmoment Min. starting torque Couple min. fourni au démarrage Coppia min. di spunto cont / int [Nm]
TF 80	81	550/730	45/60	210/280	300	220/295	22	172/236
TF 100	100	600/750	60/75	160/240	300	200/320	25	168/252
TF 130	128	470/580	60/75	140/210	300	230/360	22	192/280
TF 140	141	370/530	60/75	140/210	300	250/390	22	197/308
TF 170	169	355/440	60/75	140/210	300	320/490	23	264/388
TF 195	197	300/380	60/75	140/210	300	365/560	22	304/448
TF 240	238	320/420	75/100	140/210	300	430/670	28	368/548
TF 280	280	270/350	75/100	140/210	300	550/800	28	440/672
TF 360	364	200/260	75/100	130/190	300	590/910	24	517/779
TF 405	405	170/230	75/100	130/175	300	660/920	22	575/789
TF 475	477	150/200	75/100	115/140	300	680/850	17	603/740

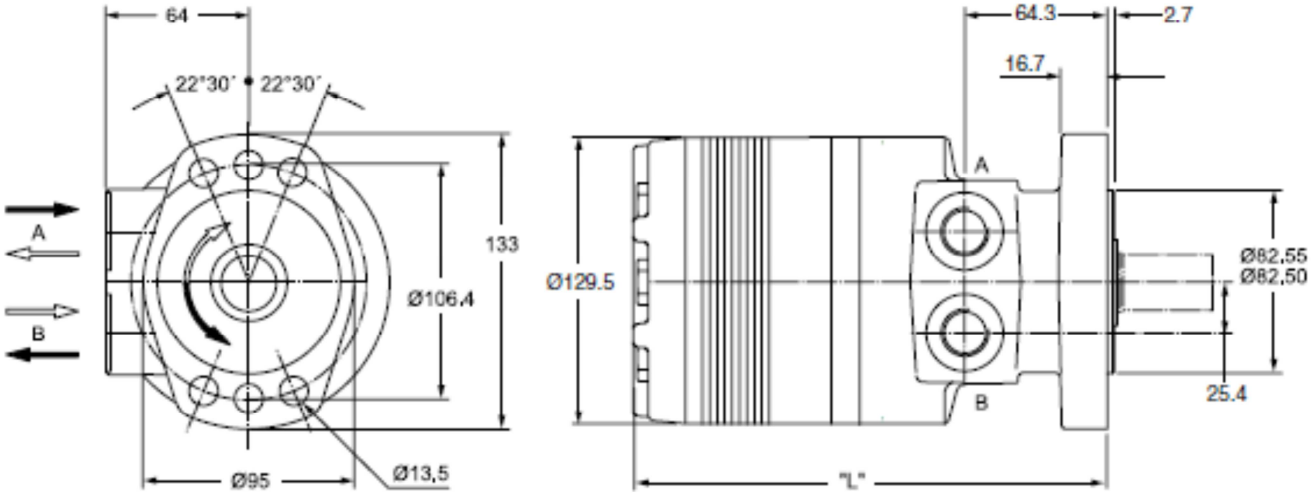
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

* Druckdifferenz Δp zwischen Ein- und Ausgang
* Pressure difference is Δp between input and output
* La différence de pression est Δp entre l'entrée et la sortie
* La differenza di pressione corrisponde al Δp tra ingresso e uscita

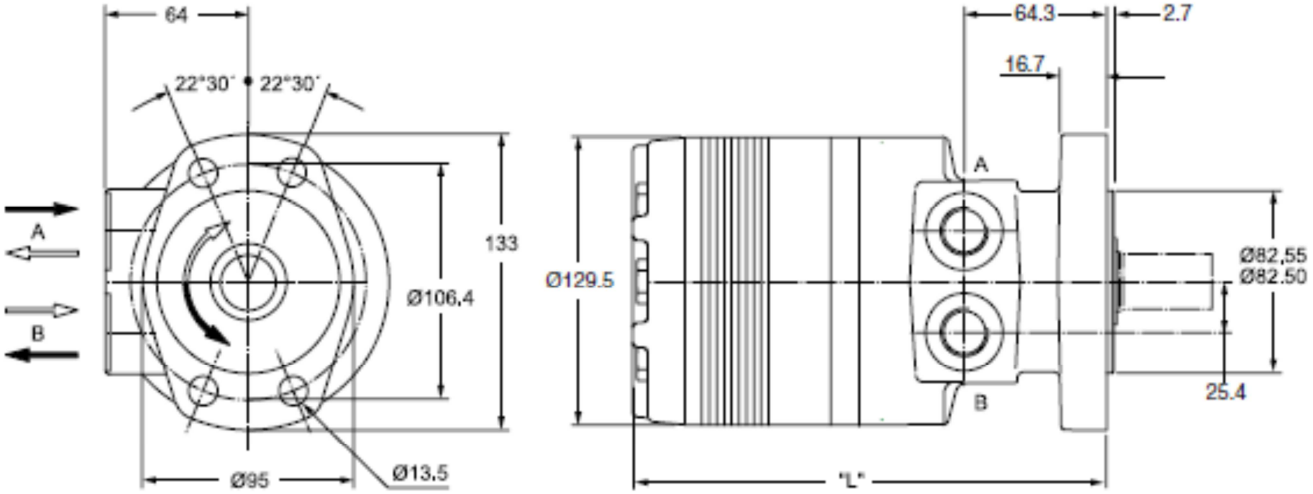
Achtung: Höhere Drücke auf Anfrage möglich.
Notice: Higher pressures are possible on request.
Remarque : des pressions supérieures sont possibles sur demande.
Nota: Pressioni superiori possibili su richiesta.

Housing Series TF

Code E



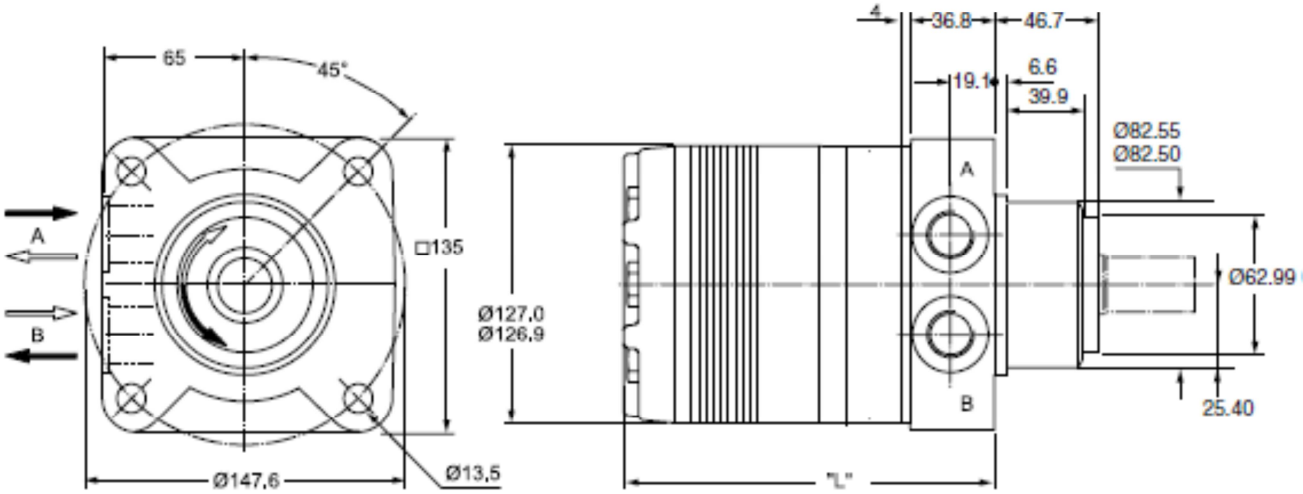
Code M



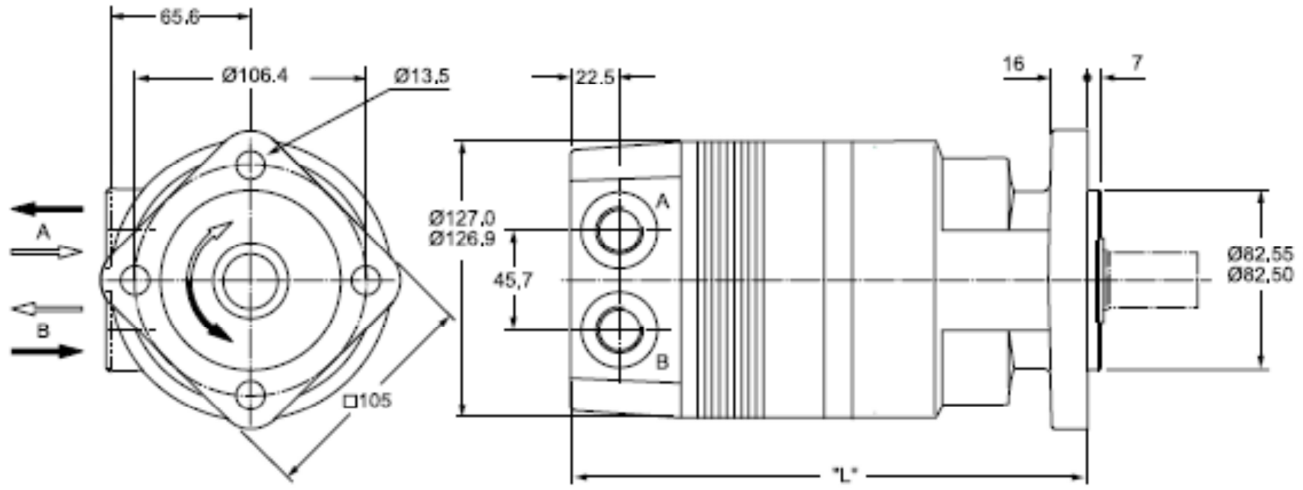
Gewicht / Weight		TF80	TF100	TF130	TF140	TF170	TF195	TF240	TF280	TF360	TF405	TF475
Poids /	Peso [kg]	13.6	13.7	13.9	14.0	14.2	14.7	15.0	15.5	16.0	16.5	17.5
Code E	"L" [mm]	186	186	189	191	194	197	202	206	215	220	229
Code M	"L" [mm]	191	191	194	196	199	202	207	212	220	225	234

Housing Series TF

Code H



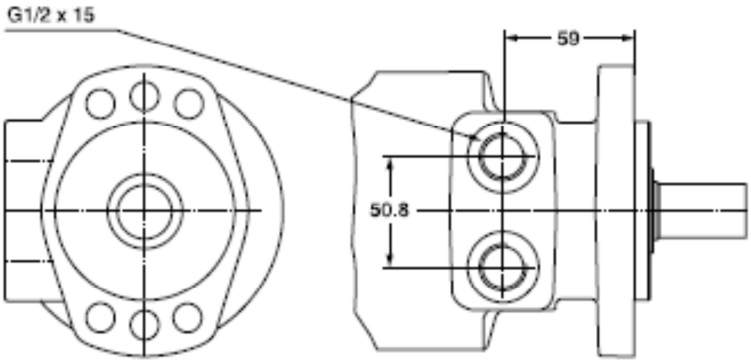
Code V



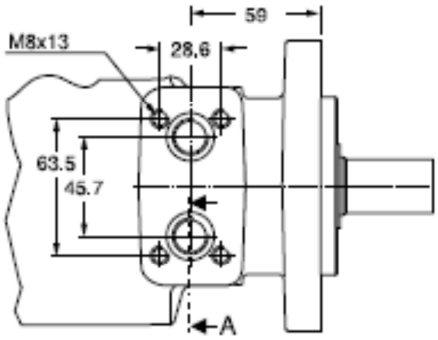
Gewicht / Weight		TF80	TF100	TF130	TF140	TF170	TF195	TF240	TF280	TF360	TF405	TF475
Poids / Peso [kg]		14.0	14.0	14.2	14.3	14.6	14.9	15.3	15.6	16.3	17.0	17.5
Code H	"L" [mm]	146	146	149	151	154	157	162	167	175	180	189
Code V	"L" [mm]	213	213	216	218	221	224	229	233	242	247	256

Front Ports — Series TF

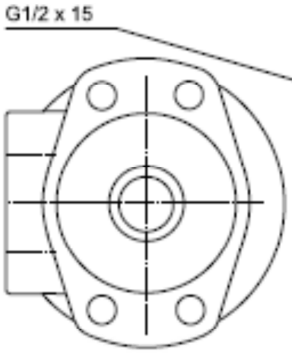
Code W



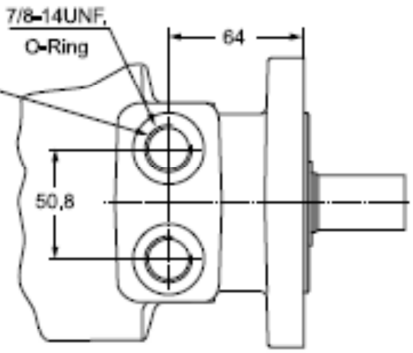
Code N



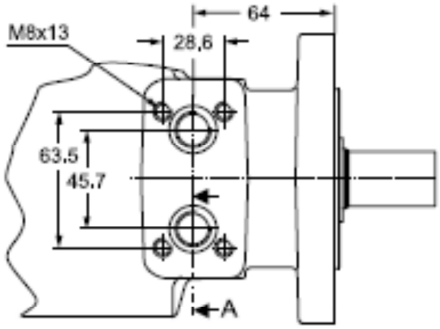
Code W



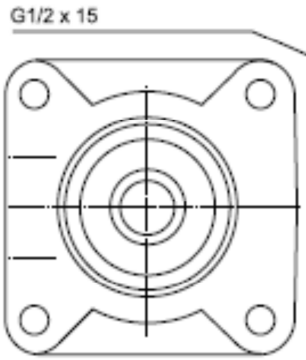
Code V



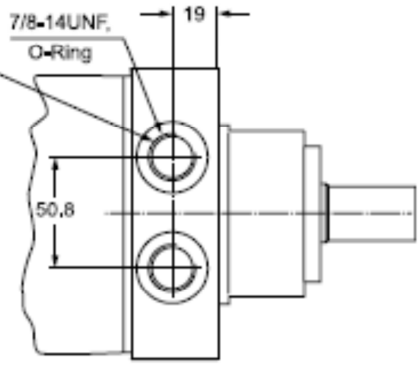
Code N



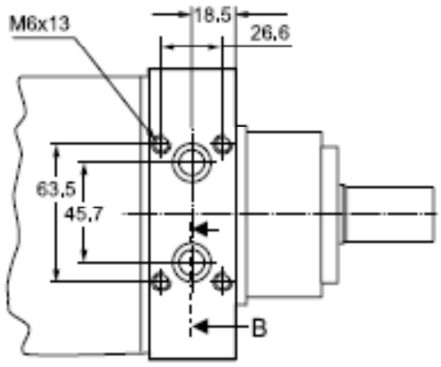
Code W



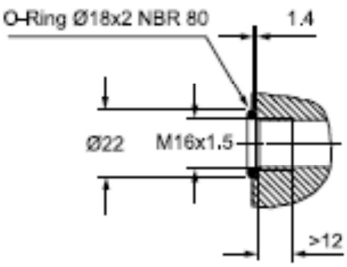
Code V



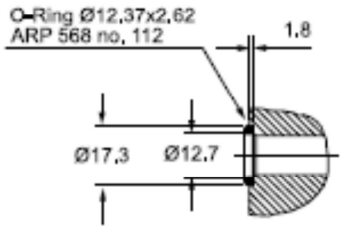
Code K



Section A



Section B



Zum Motor mit Universalanschluss werden 2 O-Ringe geliefert.

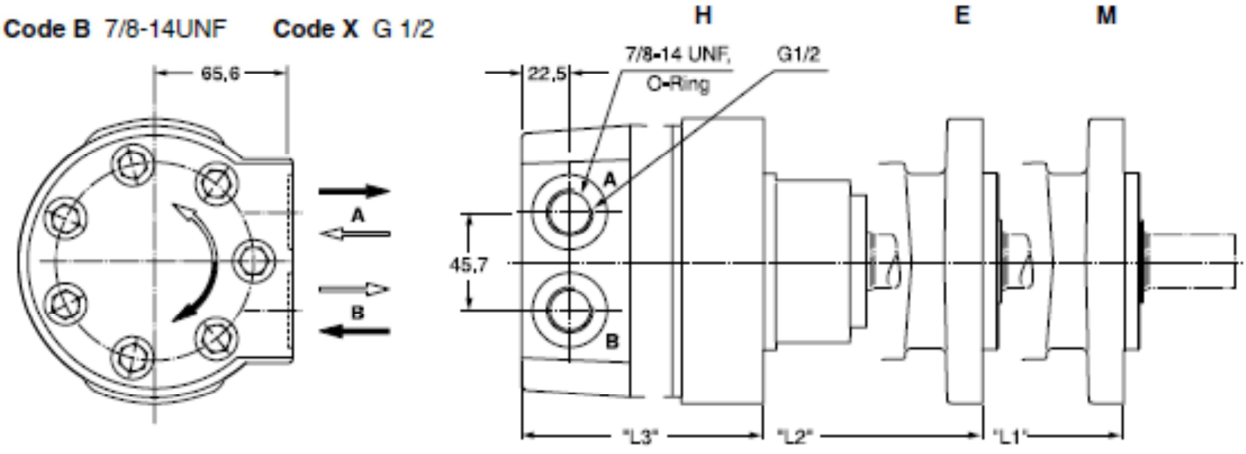
Motor with manifold mount is supplied with 2 O-rings.

Deux joints toriques sont livrés avec les moteurs au plan de raccordement universel.

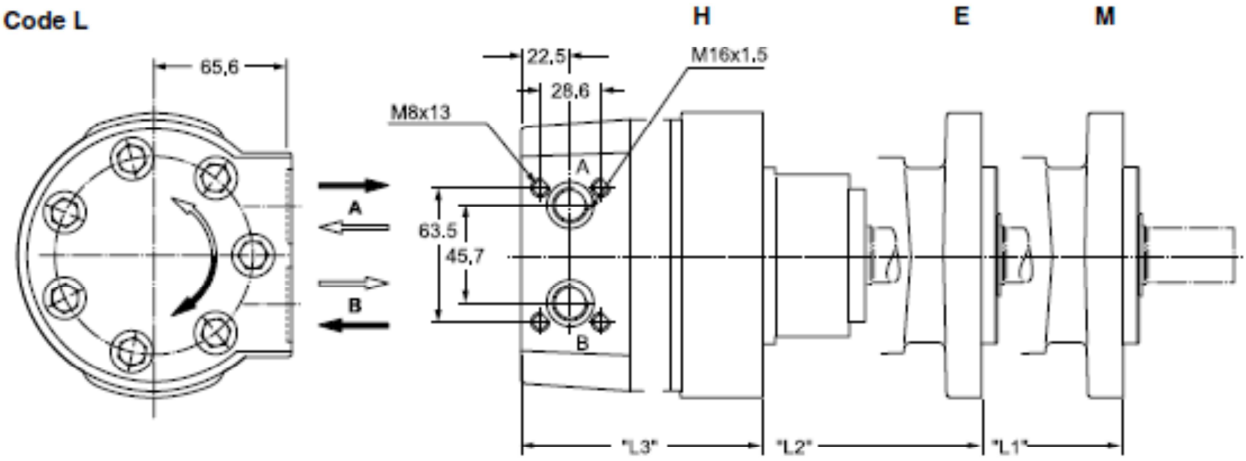
Il blocchetto connessioni è corredato da 2 OR.

Rear Ports — Series TF

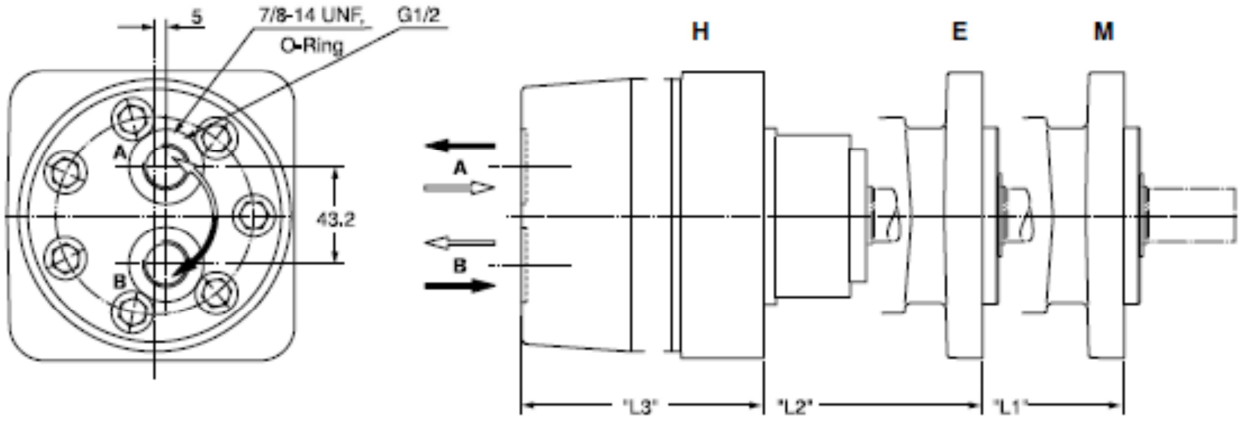
Code B 7/8-14UNF **Code X** G 1/2



Code L



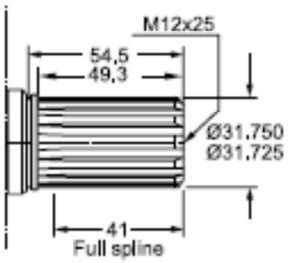
Code A 7/8-14UNF **Code Y** G 1/2



Gewicht / Weight		TF 80	TF100	TF130	TF140	TF170	TF195	TF240	TF280	TF360	TF405	TF475
Poids /	Peso [kg]	15,3	15,4	15,6	15,7	16,0	16,3	16,7	17,0	17,8	18,3	19,0
Code B,	"L1"[mm]	211	211	214	216	219	222	227	231	240	245	254
A, X, Y,	"L2"[mm]	216	216	219	221	224	227	232	236	246	250	259
L	"L3"[mm]	170	170	173	175	178	181	186	191	201	205	213

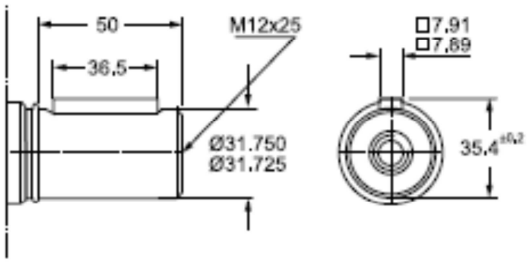
Coupling Shafts — Series TF

Code 44

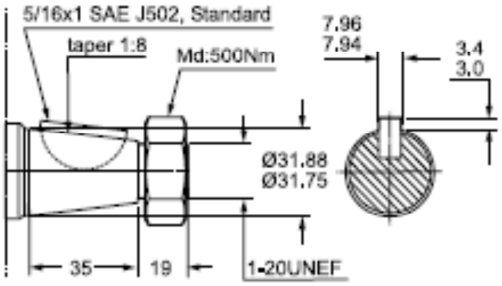


Involute spline
ANS B92.1-1970 Standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diam. 1.25 in
Pressure angle 30°

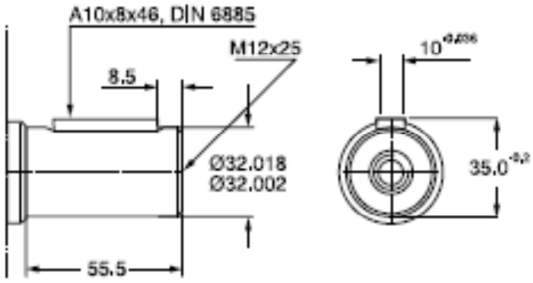
Code 45



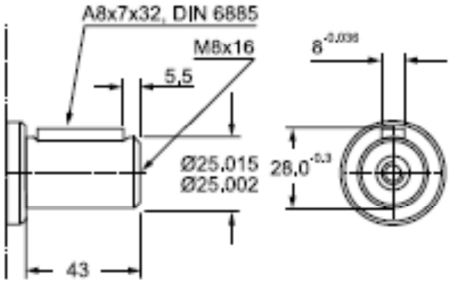
Code 08



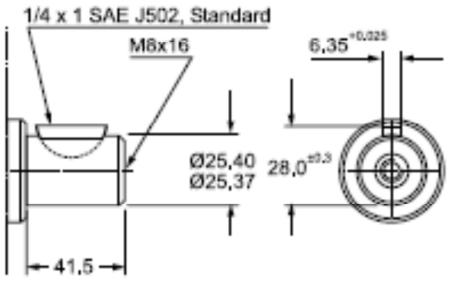
Code 46



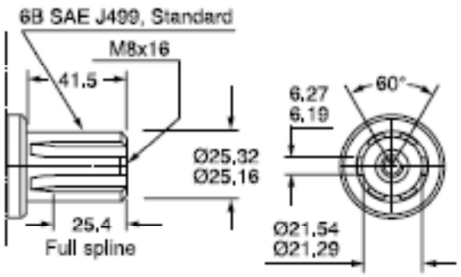
Code 26



Code 47



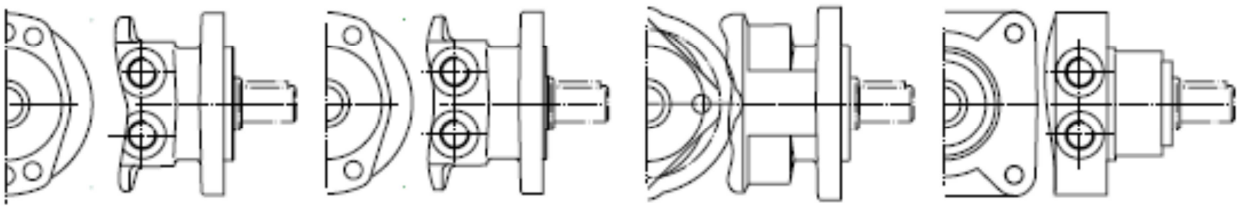
Code 41

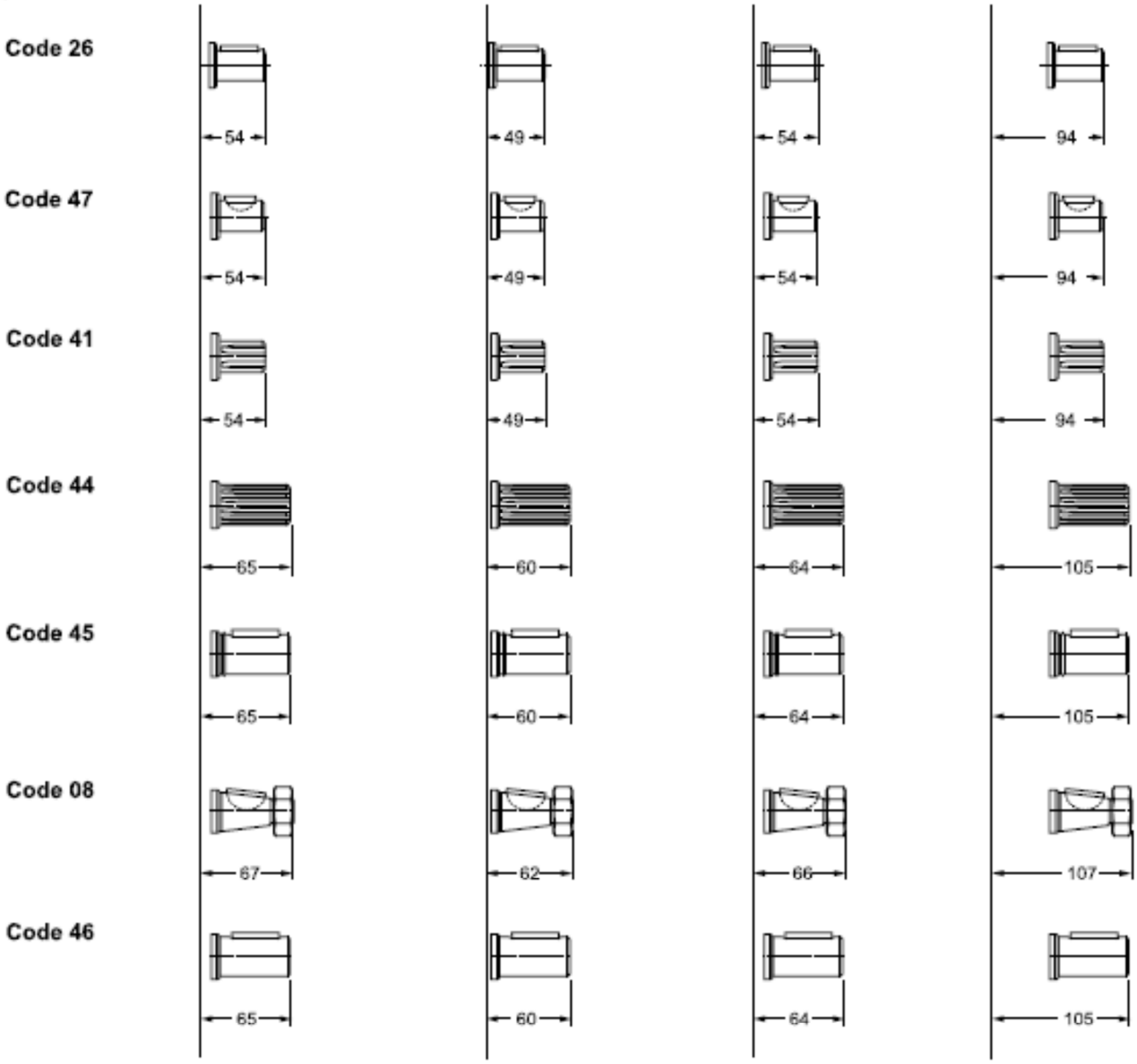


Codes 26, 41, 47

Abtriebswelle	Ø 25mm	Max. Moment cont./int.	450/550 Nm
Coupling shaft	Ø 1 inch	Max. torque cont./int.	
Arbre	6B SAE	Couple maxi cont./int.	
Albero		Coppia max cont./int.	

Coupling Shafts — Series TF

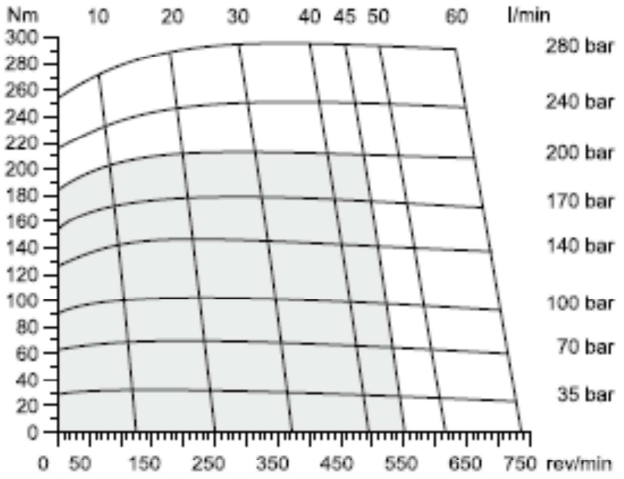




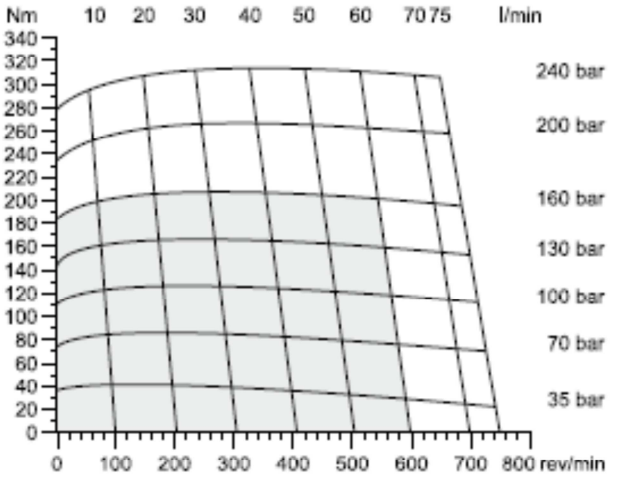
Diagrams

Series TF

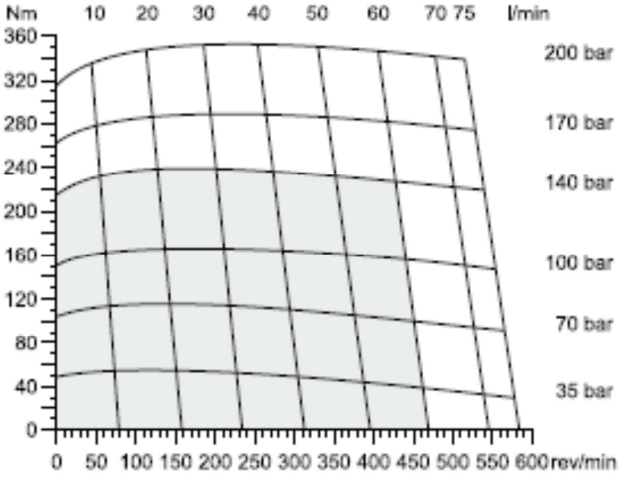
TF 80



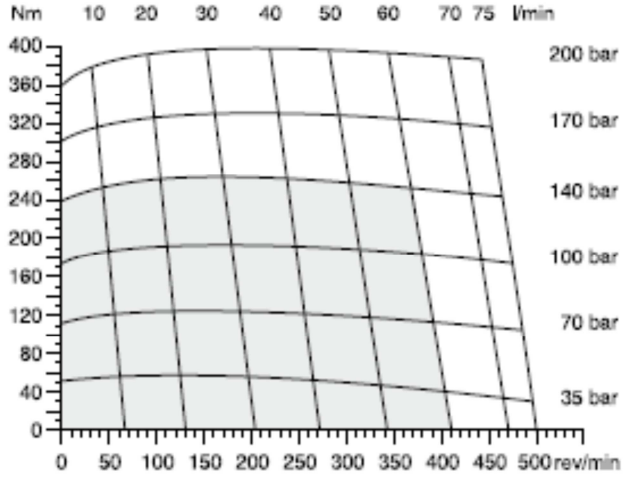
TF 100



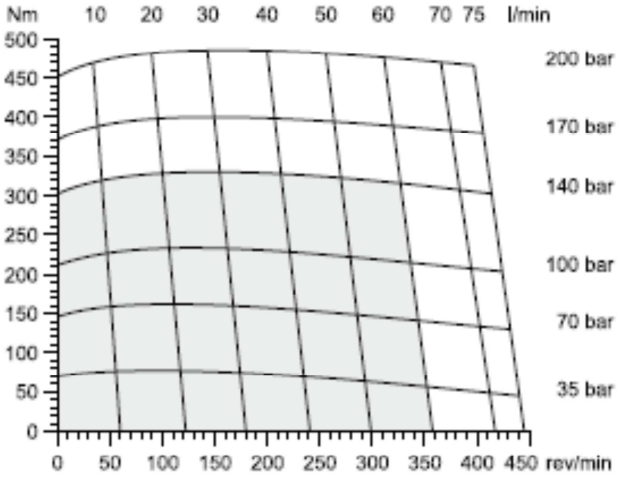
TF 130



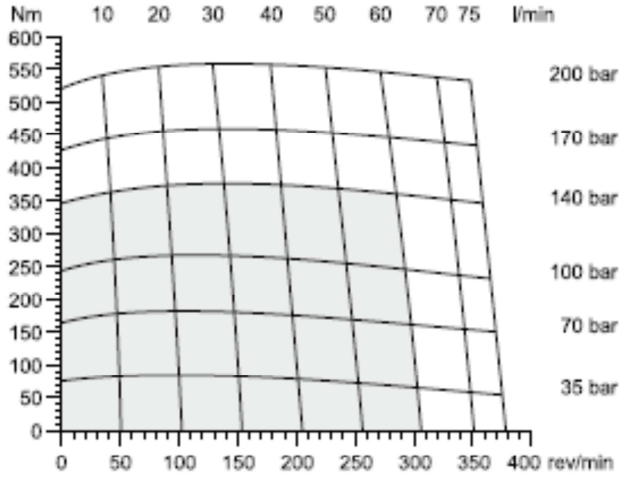
TF 140



TF 170



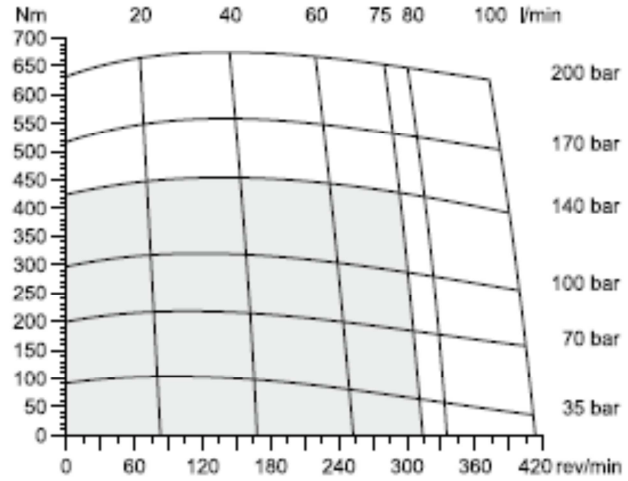
TF 195



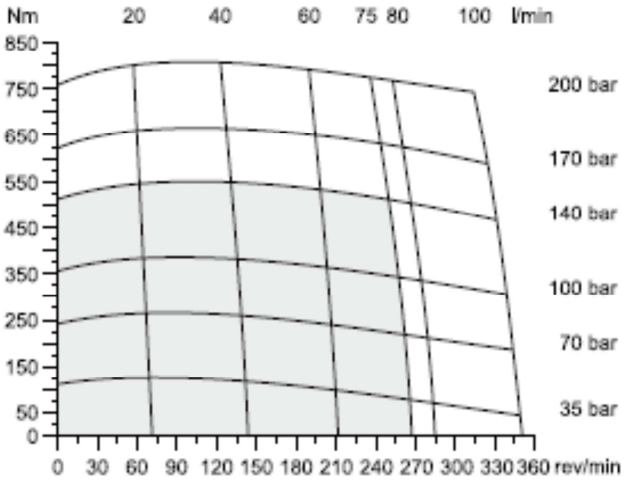
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Diagrams — Series TF

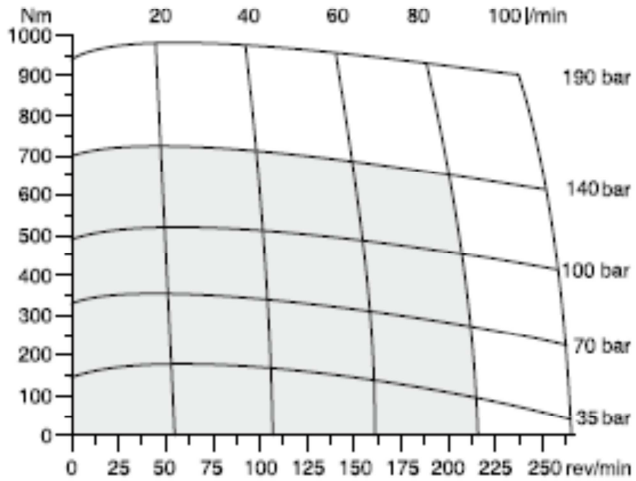
TF 240



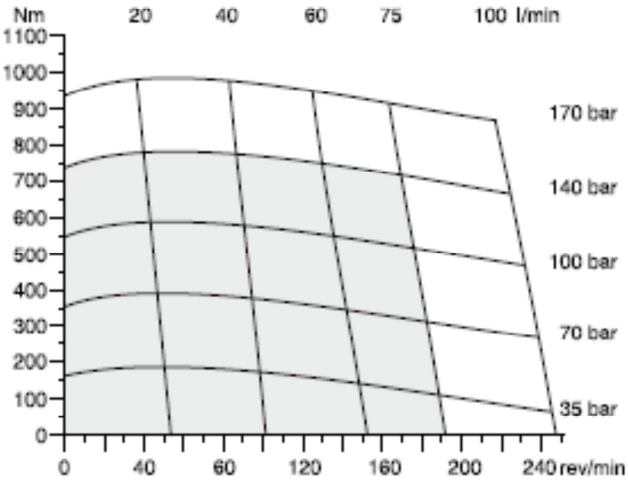
TF 280



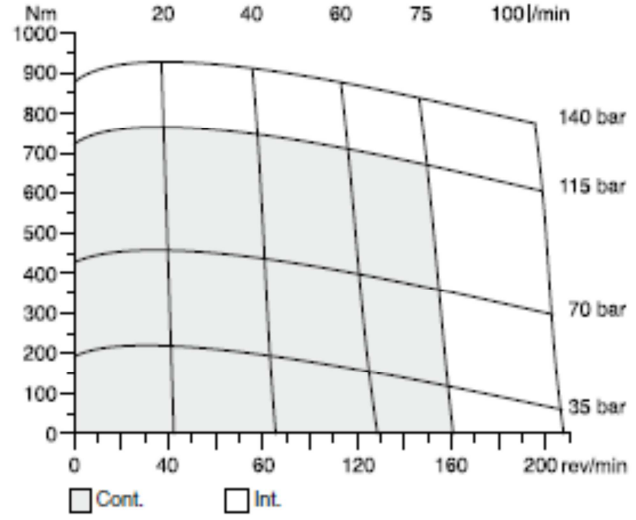
TF 360



TF 405



TF475

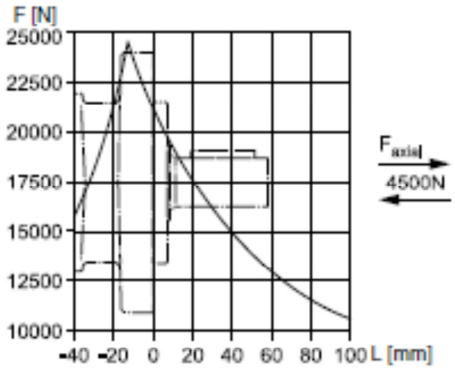


int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Life Time — Series TF

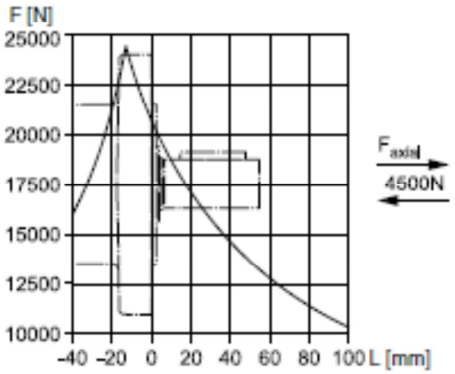
Code E

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}10 + \frac{L}{88mm}\right)}\right)^{3{,}3}}{n}$$



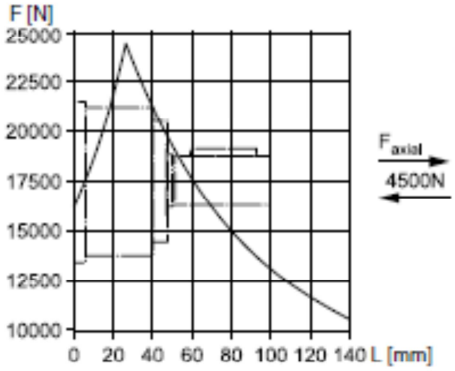
Code M

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}16 + \frac{L}{88mm}\right)}\right)^{3{,}3}}{n}$$



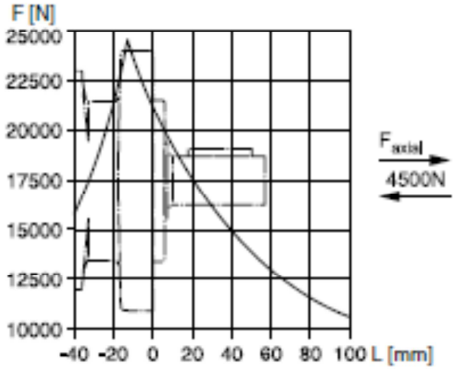
Code H

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(0{,}56 + \frac{L}{88mm}\right)}\right)^{3{,}3}}{n}$$



Code V

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}11 + \frac{L}{88mm}\right)}\right)^{3{,}3}}{n}$$



Die Lebensdauer der Radiallager (L_h in Stunden) lässt sich nach folgender Formel berechnen. Die Größe F_R ist durch die mechanische Festigkeit der Abtriebswelle begrenzt (siehe Diagramm). Das Maß "L" ist das Längenmaß vom Gehäuseflansch bis zum Angriffspunkt der Radialkraft F_R.

Life time (L_h in hours) of the radial bearings can be calculated with the following formula. The value F_R is limited by the mechanical strength of the shaft (see diagram). The measurement "L" is the length from the housing flange up to the point of impact of the radial force F_R.

La durée de vie des roulements radiaux (L_h en heures) peut être calculée par les formules suivantes. La grandeur F_R est limitée par les résistances mécaniques de l`arbre de sortie (voir diagramme). La cote "L" est la longueur entre la bride du carter jusqu`au point d`appui de l`effort radial F_R.

La durata dei cuscinetti (L_h in ore) può essere calcolata con la seguente formula. Il valore F_R è limitato dalla resistenza meccanica dell`albero (vedi diagramma). La quota "L" è la distanza tra la flangia del corpo ed il punto di applicazione della forza radiale F_R.

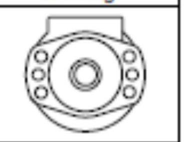
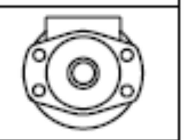
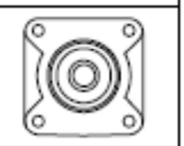
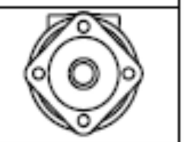
Vorstehende Formeln gelten für eine B10-Lebensdauer.	**L_h**	=	**[h]**
The preceding formulas are valid for a B10 duration of life.	**L**	=	**[mm]**
Les formules prècèdentes sont valables pour une durèe de vie B10.	**n**	=	**[rev/min]**
Le formule precedenti sono valide per una durata della vita B10.			

Ordering Code Series TF

TF	☐☐☐☐	☐	☐	☐☐	☐	A A A B
Serie Series Série Serie	Schluckvolumen Displacement Cylindrée Cilindrata	Gehäuse Housing Carter Corpo motore	Anschluss Ports Plan de raccordement Connessioni	Welle Shaft Arbre Albero	Drehrichtung Direction of rotation Direction de rotation Direzione di rotazione	Option code

For further options different to standard 'AAAB' see page 84

Code	cm³/rev
0080	81
0100	100
0130	128
0140	141
0170	169
0195	195
0240	237
0280	280
0360	364
0405	405
0475	477

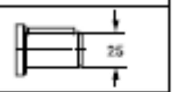
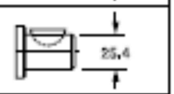
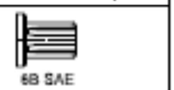
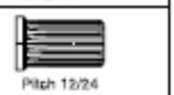
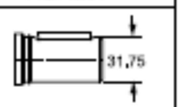
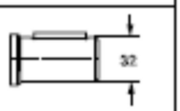
Code	Housing
E	
M	
H	
V [1)]	

[1)] Nur verfügbar mit Endanschluss
Only possible with rear port
Possible seulement avec orifice arrière
Possible solo con connessioni Posteriori

Code	Front port
W	G 1/2
V	7/8-14 UNF O-Ring
N [2)]	Universal-M8x13
K [3)]	Universal-M6x12

[2)] Nicht verfügbar für Gehäuse "H"
Not possible for housing "H"
Pas disponible pour carter "H"
Non disponibile con il corpo codice "H"
[3)] Nicht verfügbar für Gehäuse "M, E, V"
Not possible for housing "M, E, V"
Pas disponible pour carter "M, E, V"
Non disponibile con il corpo codice "M, E, V"

Code	Rear port
Y	G 1/2 Axial
A	7/8-14 UNF Axial
X	G 1/2 Radial
B	7/8-14 UNF Radial
L	Universal Radial M8x13

Code	Shaft
26[4)]	
47[4)5)]	
41[4)5)]	
44	
45	
08	
46	

4) Codes 26, 41, 47

Abtriebswelle	ø 25 mm	Max. Moment cont./int.	450/550 Nm
Coupling shaft	ø 1 inch	Max. torque cont./int.	450/550 Nm
Arbre	6B SAE	Couple maxi cont./int.	450/550 Nm
Albero		Coppia max cont./int.	450/550 Nm

5) ≤TF0280

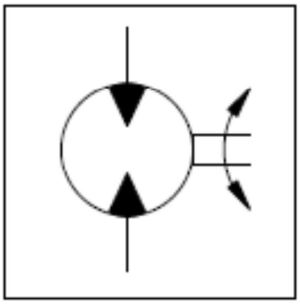
Code	Front port
0	 Standard
1	

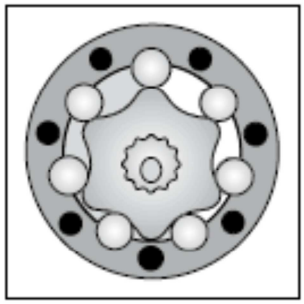
Code	Rear port
0	 Standard
1	

Performance

Series TL

Displacements Schluckvolumen Cylindrée Despazamientos	140 . . . 364 cm³/rev	
	Cont.	Int.
Maximum Pressure Eingangsdruck Pression entrée Presion Maxima	190 bar	241 bar
Maximum Oil Flow Schluckstrom Débit d'huile Caudal Maximo de Aceite	95 l/min	
Maximum Speed Drehzahl Vitesse de rotation Velocidad Maxima	484 rev/min	
	Cont.	Int.
Maximum Torque MaxDrehmoment Couple Torque Maximo	977 Nm	1164 Nm





Motor series TF	Geom. Schluckvolumen / Geometric displacement / Cylindrée / Cilindrata [cm³/U] [cm³/rev]	Max. Drehzahl / Max. speed / Vitesse de rotation maxi / Velocità di rotazione max cont / int [U/min] [rev/min]	Max. Schluckstrom / Max. oil flow / Débit d'huile maxi / Portata max cont / int [l/min]	Max. Druckdifferenz * / Max. differential pressure * / Chute de pression maxi * / Caduta di pressione max * cont / int [bar]	Max. Eingangsdruck / Max. supply pressure / Pression maxi entrée / Pressione max in entrata max [bar]	Max. Drehmoment / Max. torque / Couple maxi / Coppia max cont / int [Nm]	Max. Leistungsabgabe / Max. performance / Puissance de sortie maxi / Potenza meccanica max cont / int [KW]	Min. Anlaufmoment / Min. starting torque / Couple min. fourni au de marrage / Coppia min. di spunto cont / int [Nm]
TL0140	140	613	68/95	190/241	300	364/463	30	294/365
TL0170	169	512	68/95	190/241	300	449/570	31	354/445
TL0195	195	484	68/95	190/241	300	511/648	34	414/526
TL0240	238	399	68/95	190/241	300	620/790	34	536/679
TL0280	280	335	68/95	190/241	300	730/929	34	619/787
TL0310	310	310	68/95	190/241	300	847/1079	36	713/907
TL0360	364	255	68/95	172/224	300	890/1163	31	778/1002

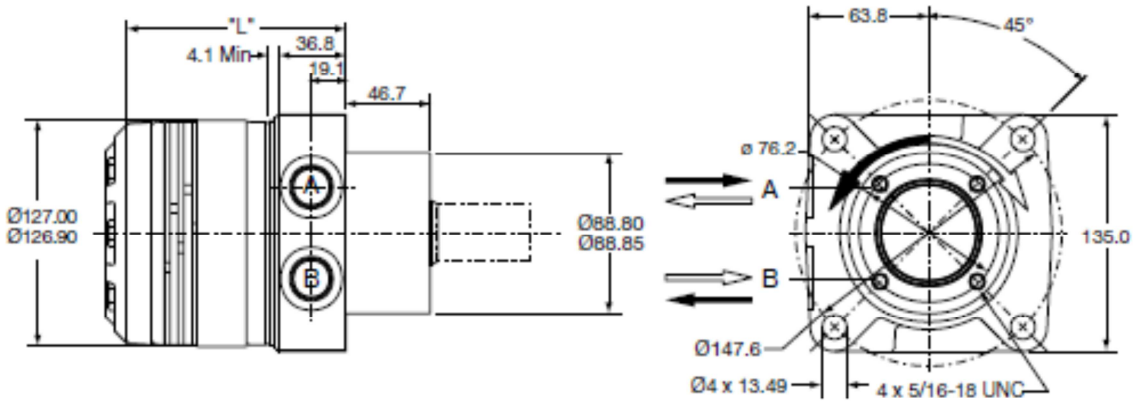
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

* Druckdifferenz Δp zwischen Ein- und Ausgang
* Pressure difference is Δp between input and output
* La différence de pression est Δp entre l'entrée et la sortie
* La differenza di pressione corrisponde al Δp tra ingresso e uscita

Achtung: Höhere Drücke auf Anfrage möglich.
Notice: Higher pressures are possible on request.
Remarque : des pressions supérieures sont possibles sur demande.
Nota: Pressioni superiori possibili su richiesta.

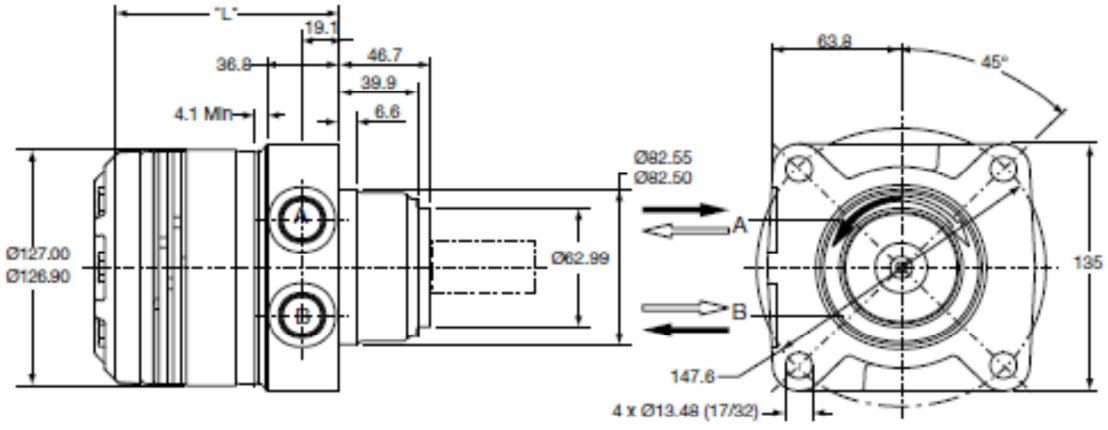
Housing Series TL

Code: L



Code L disp.	0140	0170	0195	0240	0280	0310	0360
Weight/Gewicht kg Poids/Peso	10.9	11.1	11.4	11.8	12.2	12.4	12.9
Length "L" mm	124	124	124	127	132	135	143

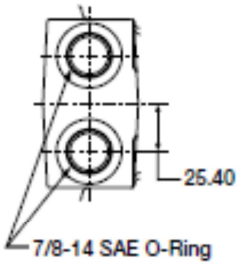
Code: U



Code U disp.	0140	0170	0195	0240	0280	0310	0360
Weight/Gewicht [kg] Poids/Peso	10.9	11.1	11.4	11.8	12.2	12.4	12.9
Length "L" mm	124	124	124	127	132	135	143

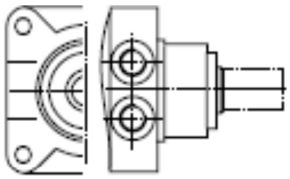
Ports / Shafts — Series TL

Code: S

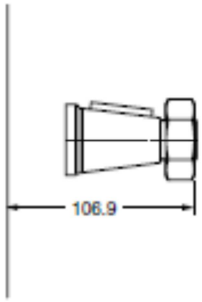


Shafts / Abtriebswellen
Arbre / Ejes

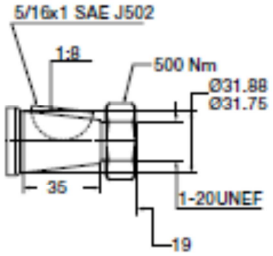
Code: L, U

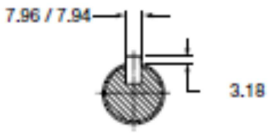


Code: 08



Code: 08

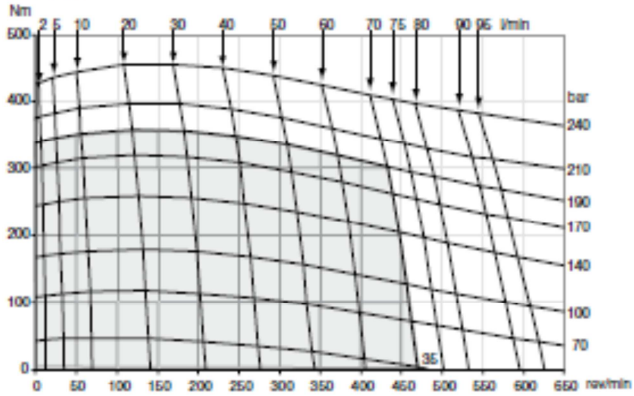




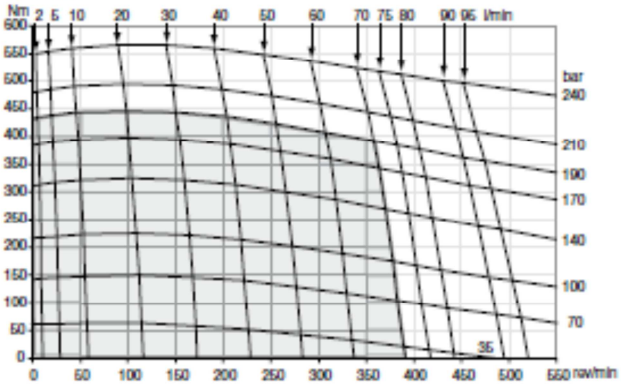
Diagrams

Series TL

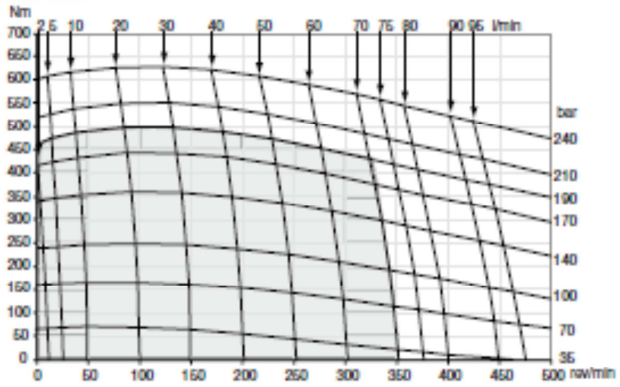
TL 140



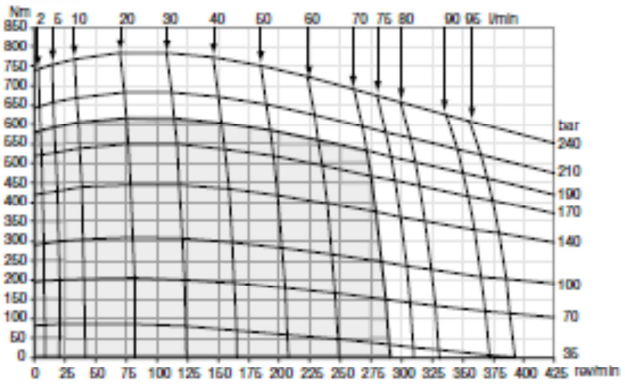
TL 169



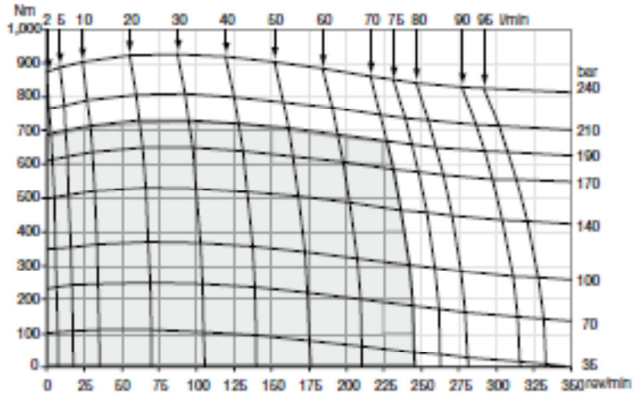
TL 195



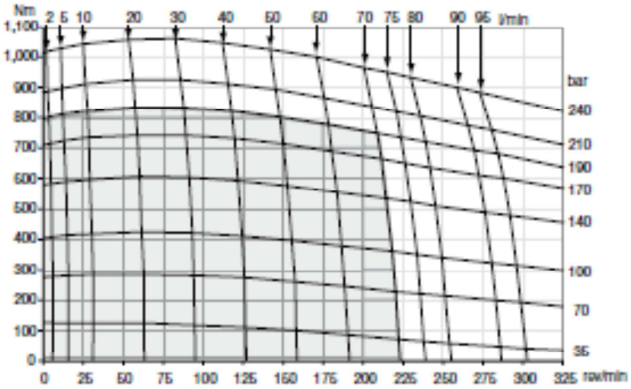
TL 238



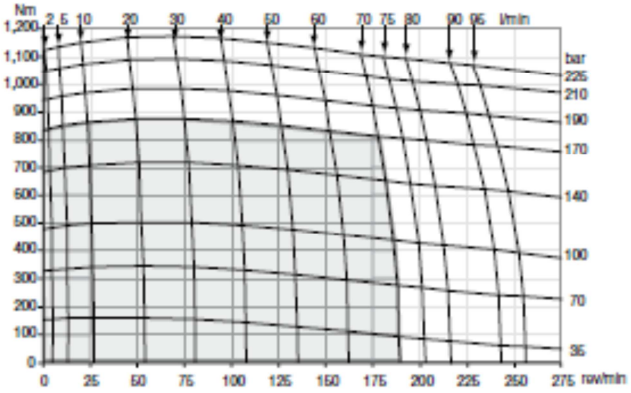
TL 280



TL 310



TL 334

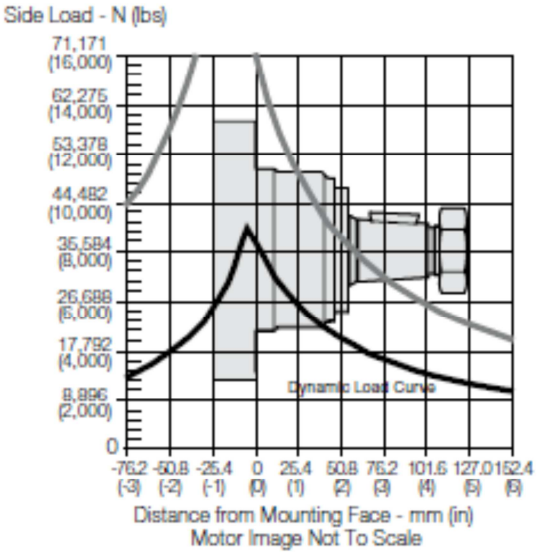


☐ Cont. ☐ Int.

int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Wheel Mount / Radnabengehäuse

Monture à roue/ Montaje de rueda



The dynamic side load curve is based on uni-directional steady state loads for L_{10} bearing life at 3 x 10^6 revolutions.

Die zulässige auslegbare radiale Wellenbelastungskurve ist unter ruhenden, einseitig statisch gerichteten Lastverhältnissen auf eine L_{10} Lebensdauer mit 3 x 10^6 Umdrehungen kalkuliert.

La courbe de charge latérale permise se base sur des charges unidirectionnelles en régime permanent pour le roulement L_{10} à 3 x 10^6 révolutions.

La curva de valores admisibles de carga lateral está basada en cargas constantes para cojinetes L_{10} a 3 x 10^6 revoluciones.

The maximum load curve is defined by bearing static load capacity. This curve should not be exceeded at any time including shock loads.

Die maximale radiale Wellenbelastungskurve ist definiert als maximale statische Last ohne Drehzahl. Sie gilt als Grenze und sollte keinesfalls überschritten werden.

La courbe de charge maximale est définie par la capacité de charge statique portante. Cette courbe ne devrait être dépassée en aucun moment y compris pour les charges par à-coups.

La curva de carga máxima queda definida por la capacidad de carga estática del cojinete. No se deben superar los valores de esta curva, ni siquiera con cargas provisorias de impacto.

Equation to Calculate the Expected Radial Bearing Life
Gleichung zur Ermittlung der Lagerlebensdauer

Equation to calculate the dynamic bearing life for a given load:
Bestimmung der erlaubten radialen Wellenbelastung mit vorgegebener Last

Use F_a, F_b and S in equation to determine hours of L_{10} bearing life.
Die Lebensdauer in Stunden ergibt sich durch einsetzen von F_a, F_b, und S in die nachstehende Formel.

$$L = \frac{3 \times 10^6}{60 \times S} \left\{ \frac{F_a}{F_b} \right\}^{3.33}$$

Where / Mit:

S = Shaft Speed RPM / Abtriebswellendrehzahl in min^{-1}
L = Life In Hours / Lebensdauer in Stunden
F_a = Dynamic side load defined by above curve at a distance from mounting flange. / Erlaubte radiale Wellenbelastung als Function der Laenge
F_b = Application side load. / Anwendungsseitige Wellenbelastung

Ordering Code — Series TL

TL — Series

XXXX — Displacement / Schluckvolumen / Cylindrée / Desplazamiento

Code	cm³/tr cm³/giro cm³/U	in³/rev
0140	141	8.6
0170	169	10.3
0195	195	11.9
0240	238	14.5
0280	280	17.1
0310	310	18.9
0360	364	22.2

X — Mounting / Gehäuse / Carter / Montaje

Code	Mounting
L	Wheel, Front Brake Nose 
U	Wheel, Standard 

X — Ports / Anschluß / Plan de raccordement / Lumbreras

Code	Ports
S	7/8-14 SAE 

XX — Shaft / Welle / Arbre / Eje

Code	Shaft
08	1 1/4" Tapered 

0 — Rotation / Drehrichtung / Direction de rotation / Rotacion

Code	Front Port Rotation
0	Standard 
1	Reverse Timed Manifold 

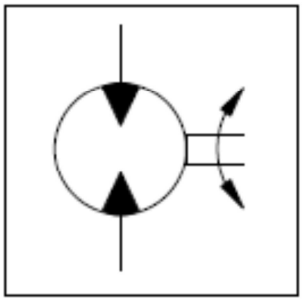
XXXX — Options / Opciones

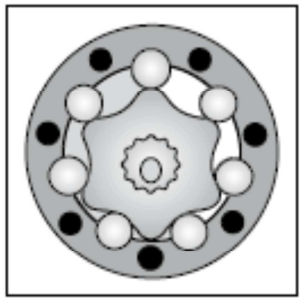
Code	
AAAB	No Paint No lackiert
AAAA	Black Paint Schwarz lackiert

Performance

Series TG

Drehzahl Speed Vitesse de rotation Velocità di rotazione	5...710 rev/min
Schluckstrom Oil flow Débit d'huile Portata	max. 115 l/min
Eingangsdruck Supply pressure Pression entrée Pressione in entrata	max. 300 bar
Drehmoment Torque Couple Coppia	max. 1490 Nm
Seitenlast Side load Charges latérales Carico radiale	max. 16.000 N





Motor series TF	Geom. Schluckvolumen Geometric displacement Cylindrée Cilindrata [cm³/U] [cm³/rev]	Max. Drehzahl Max. speed Vitesse de rotation maxi Velocità di rotazione max cont / int [U/min] [rev/min]	Max. Schluckstrom Max. oil flow Débit d'huile maxi Portata max cont / int [l/min]	Max. Druckdifferenz * Max. differential pressure * Chute de pression maxi * Caduta di pressione max * cont / int [bar]	Max. Eingangsdruck Max. supply pressure Pression maxi entrée Pressione max in entrata max [bar]	Max. Drehmoment Max. torque Couple maxi Coppia max cont / int [Nm]	Max. Leistungsabgabe Max. performance Puissance de sortie maxi Potenza meccanica max cont / int [KW]	Min. Anlaufmoment Min. starting torque Couple min. fourni au dé marrage Coppia min. di spunto cont / int [Nm]
TG 140	141	530/710	75/100	210/280	300	400/545	33	320/436
TG 170	169	440/575	75/100	210/280	300	485/670	33	388/536
TG 195	195	380/510	75/100	210/280	300	560/770	33	448/616
TG 240	238	320/420	75/100	210/280	300	685/945	32	548/756
TG 280	280	270/350	75/100	210/280	300	800/1100	31	675/880
TG 335	337	225/290	75/100	210/280	300	980/1350	30	784/1080
TG 405	405	185/245	75/100	170/240	300	960/1350	27	791/1145
TG 475	477	160/240	75/115	140/210	300	960/1400	28	768/1120
TG 530	529	140/215	75/115	140/170	300	1050/1280	23	874/1091
TG 625	613	120/185	75/115	120/160	300	1040/1360	20	895/1165
TG 785	786	95/145	75/115	100/140	300	1150/1490	17	991/1341
TG 960	959	78/119	75/115	70/100	300	925/1390	12	763/1177

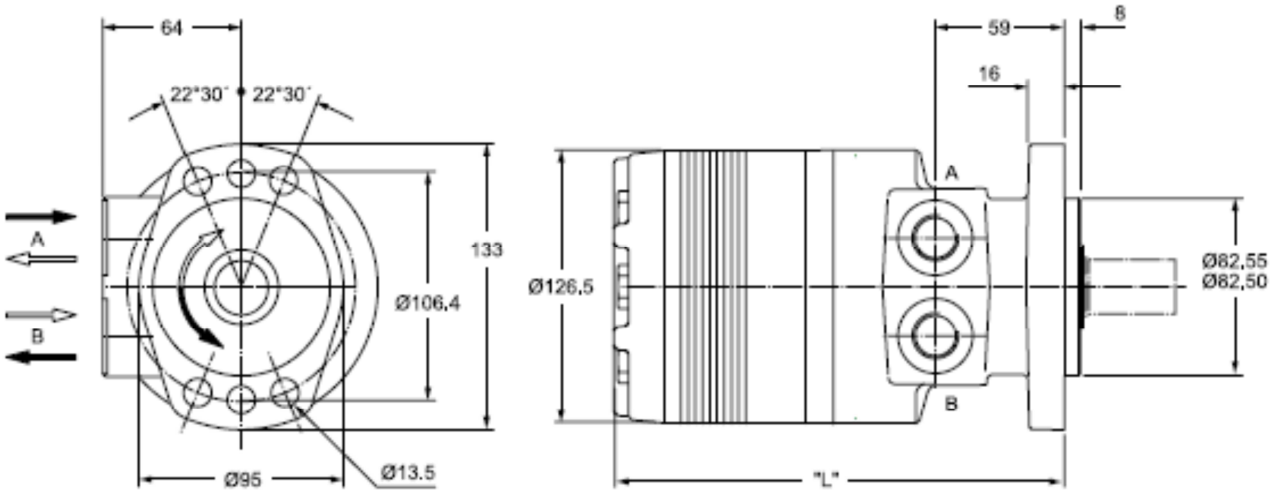
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

* Druckdifferenz Δp zwischen Ein- und Ausgang
* Pressure difference is Δp between input and output
* La différence de pression est Δp entre l'entrée et la sortie
* La differenza di pressione corrisponde al Δp tra ingresso e uscita

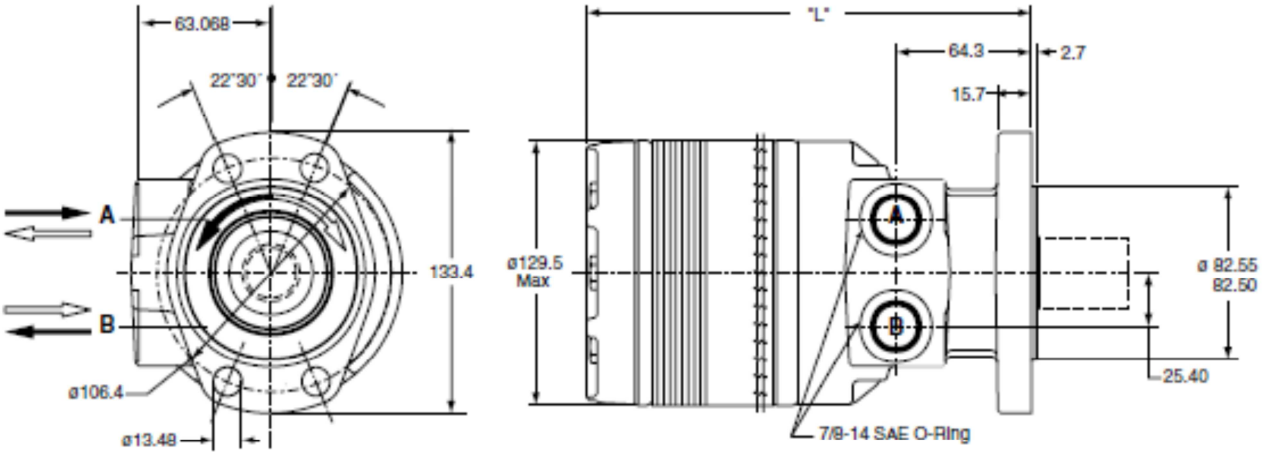
Achtung: Höhere Drücke auf Anfrage möglich.
Notice: Higher pressures are possible on request.
Remarque : des pressions supérieures sont possibles sur demande.
Nota: Pressioni superiori possibili su richiesta.

Housing Series TG

Code E



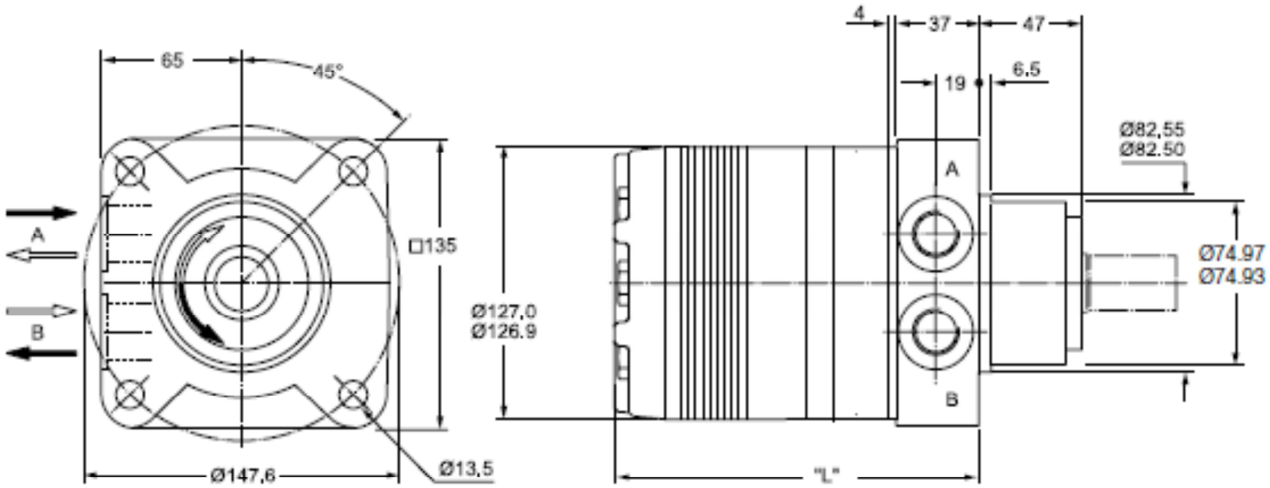
Code M



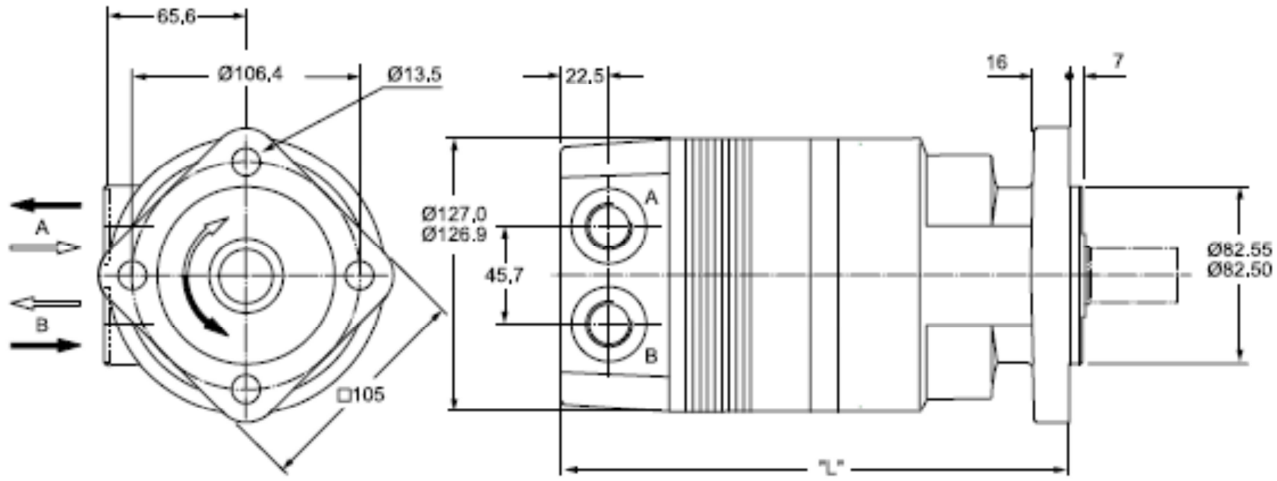
Gewicht / Weight		TG140	TG170	TG195	TG240	TG280	TG335	TG405	TG475	TG530	TG625	TG785	TG960
Poids / Peso [kg]		14.2	14.5	14.7	15.1	15.5	15.9	16.5	17.2	17.9	18.6	20.2	22.0
Code H	"L" [mm]	191	194	197	202	207	213	220	229	235	245	264	283
Code V	"L" [mm]	196	199	202	208	212	218	225	234	240	250	269	288

Housing Series TG

Code H



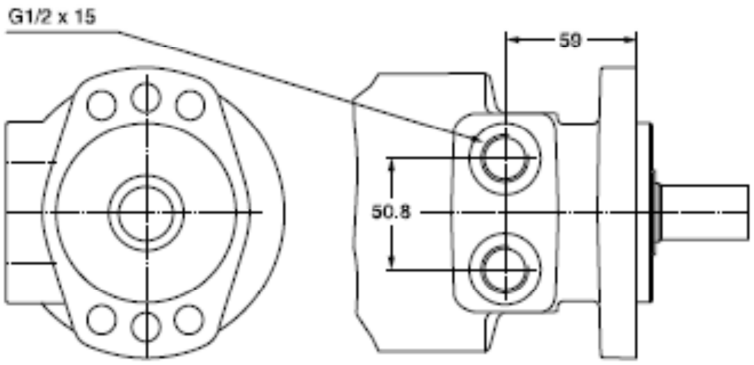
Code V



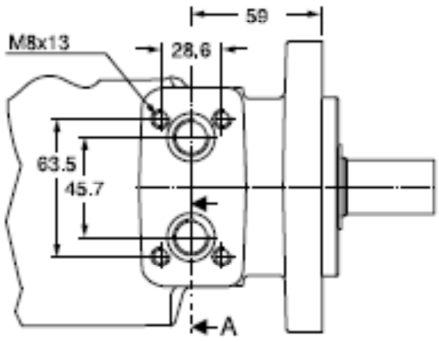
Gewicht / Weight		TG140	TG170	TG195	TG240	TG280	TG335	TG405	TG475	TG530	TG625	TG785	TG960
Poids / Peso [kg]		16.1	16.3	16.6	17.0	17.4	17.8	18.4	19.0	19.8	20.5	22.0	23.7
Code H	"L" [mm]	150	154	157	162	166	173	180	188	195	204	223	242
Code V	"L" [mm]	217	220	224	228	233	238	246	255	262	272	290	309

Front Ports — Series TG

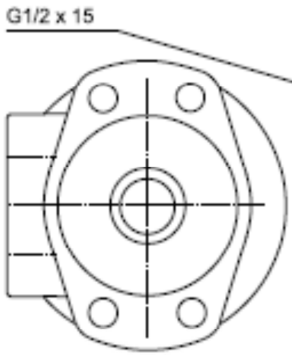
Code W



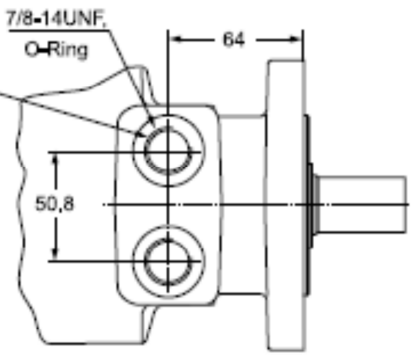
Code: N



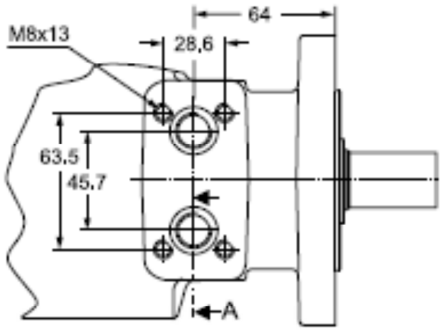
Code W



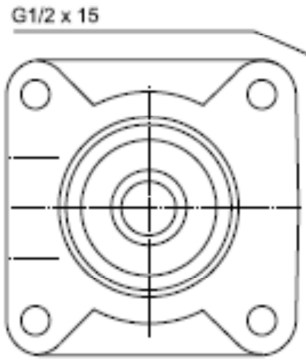
Code V



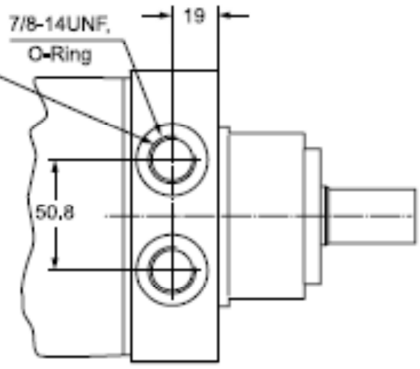
Code N



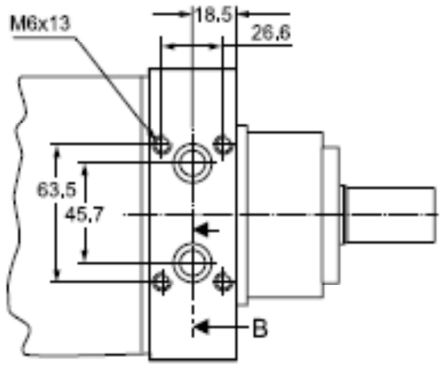
Code W



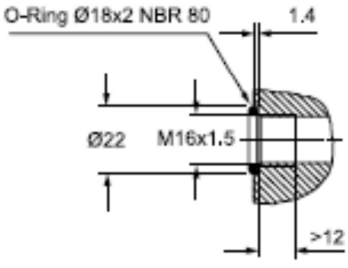
Code V



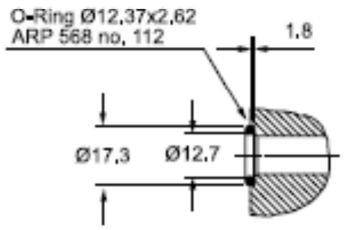
Code K



Section A



Section B



Zum Motor mit Universalanschluss werden 2 O-Ringe geliefert.

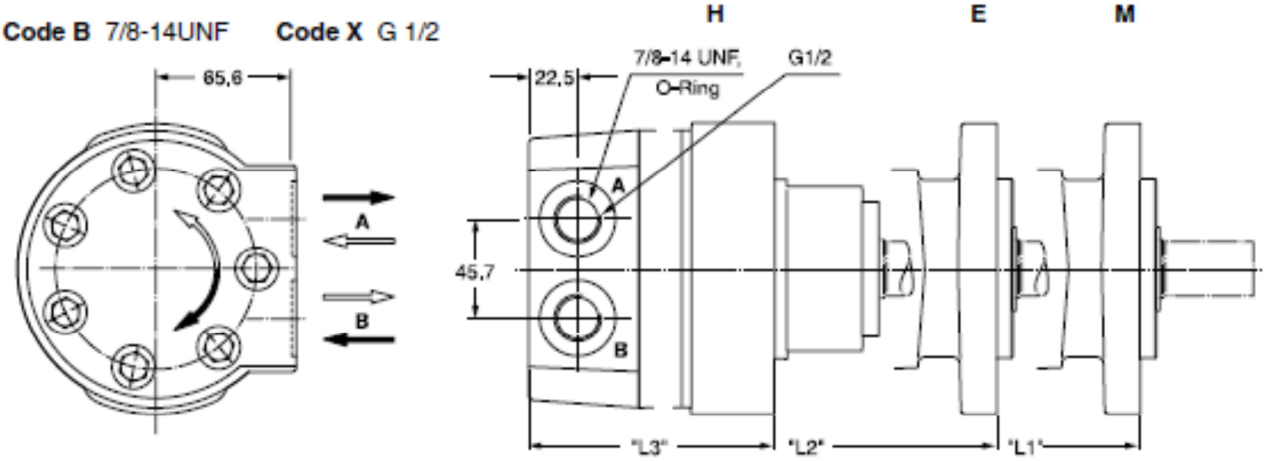
Motor with manifold mount is supplied with 2 O-rings.

Deux joints toriques sont livrés avec les moteurs au plan de raccordement universel.

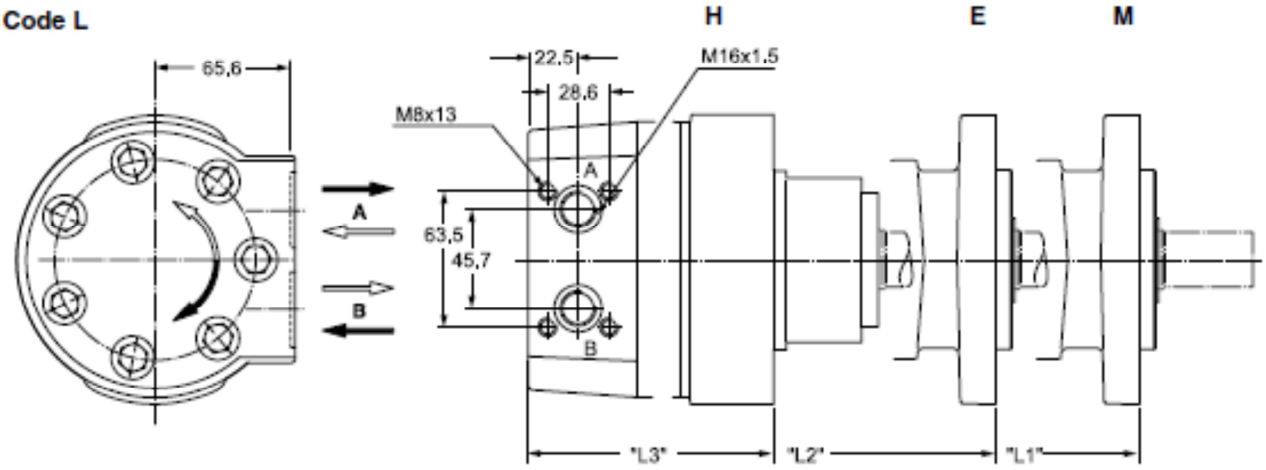
Il blocchetto connessioni è corredato da 2 OR.

Rear Ports — Series TG

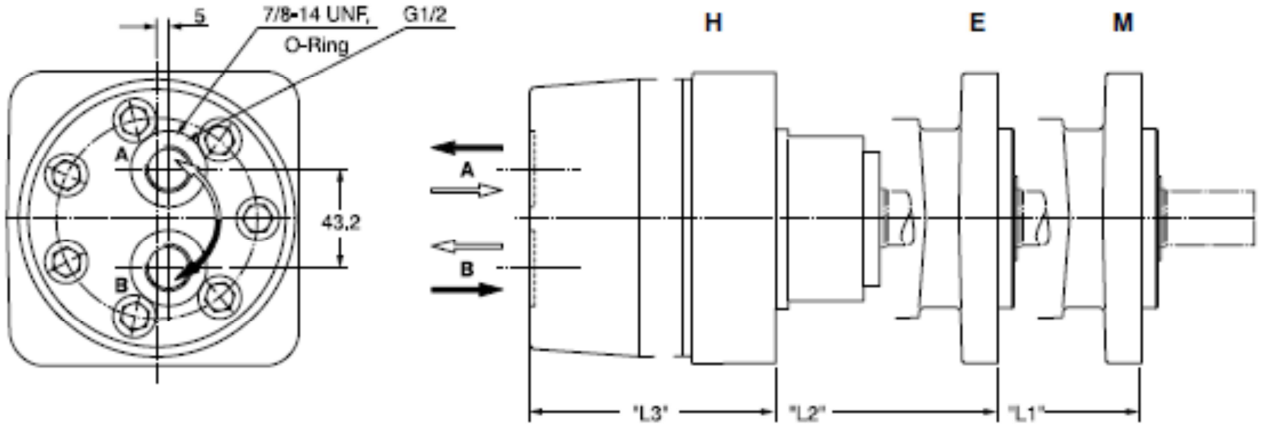
Code B 7/8-14UNF **Code X** G 1/2



Code L



Code A 7/8-14UNF **Code Y** G 1/2

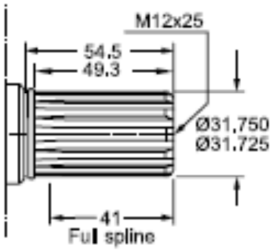


Gewicht / Weight		TG140	TG170	TG195	TG240	TG280	TG335	TG405	TG475	TG530	TG625	TG785	TG960
Poids / Peso [kg]		16.1	16.3	16.6	17.0	17.4	17.8	18.4	19.0	19.8	20.5	22.0	23.7
Code B, X, L, A, Y	"L1"[mm]	216	219	222	227	232	238	245	254	260	270	289	308
	"L2"[mm]	221	224	227	232	237	243	250	259	265	275	294	313
	"L3"[mm]	175	179	182	187	191	198	205	213	220	229	247	267

Catalogue HY30-3200/DE/UK/FR/IT
Coupling Shafts

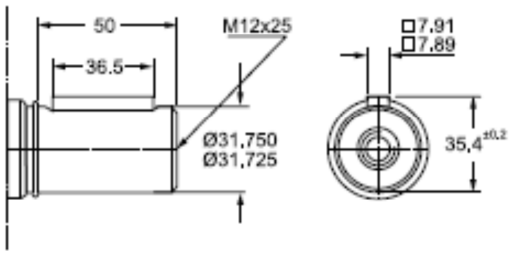
Torqmotor
Series TG

Code 44

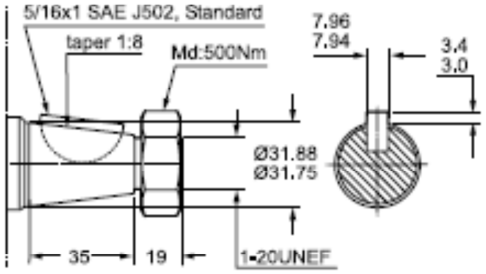


Involute spline
ANS B92.1-1970 Standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diam. 1.25 in
Pressure angle 30°

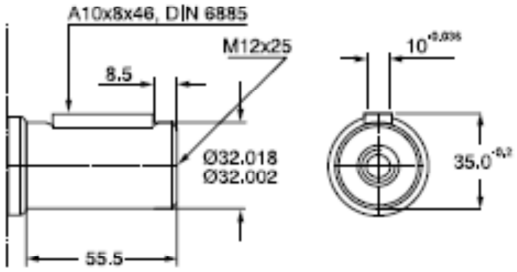
Code 45



Code 08

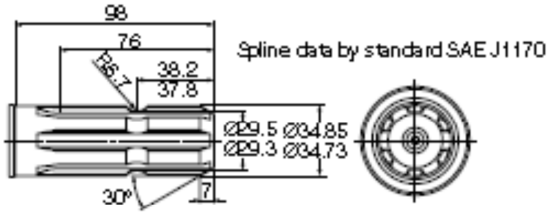


Code 46

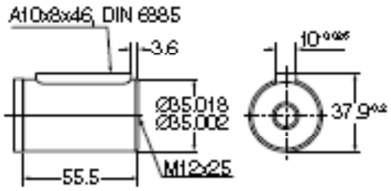


* On request shaft with 35mm diameter

Code 92

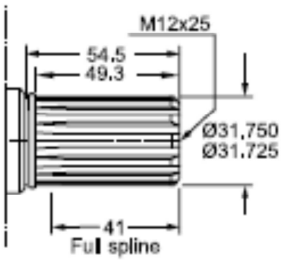


Code 94



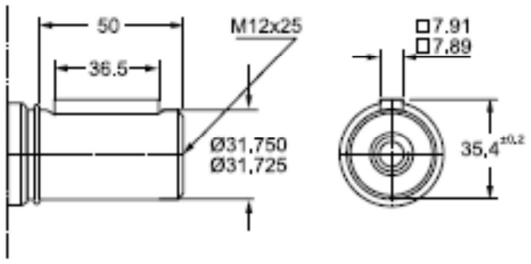
Coupling Shafts — Series TG

Code 44

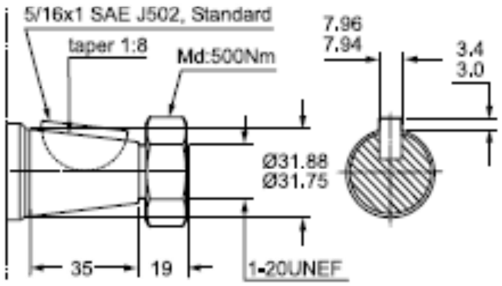


Involute spline
ANS B92.1-1970 Standard
Flat root side fit
Pitch 12/24
Teeth 14
Major diam. 1.25 in
Pressure angle 30°

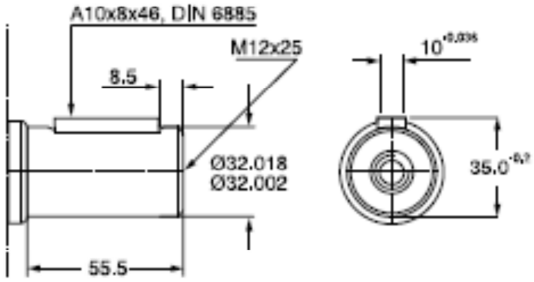
Code 45



Code 08

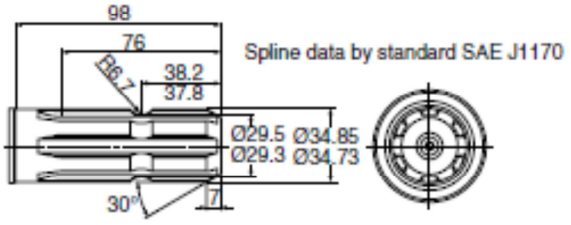


Code 46

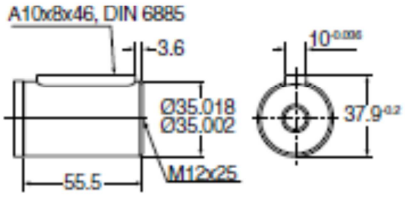


* On request shaft with 35mm diameter

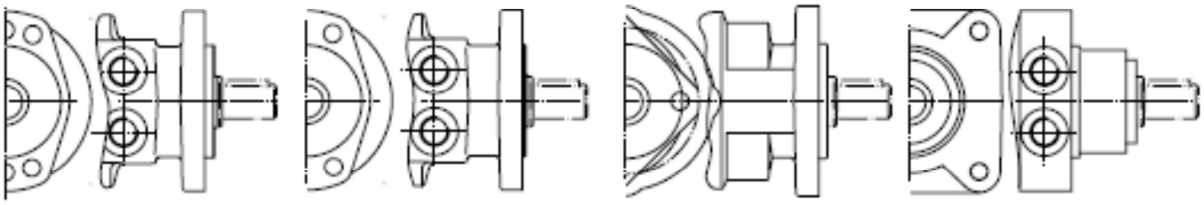
Code 92

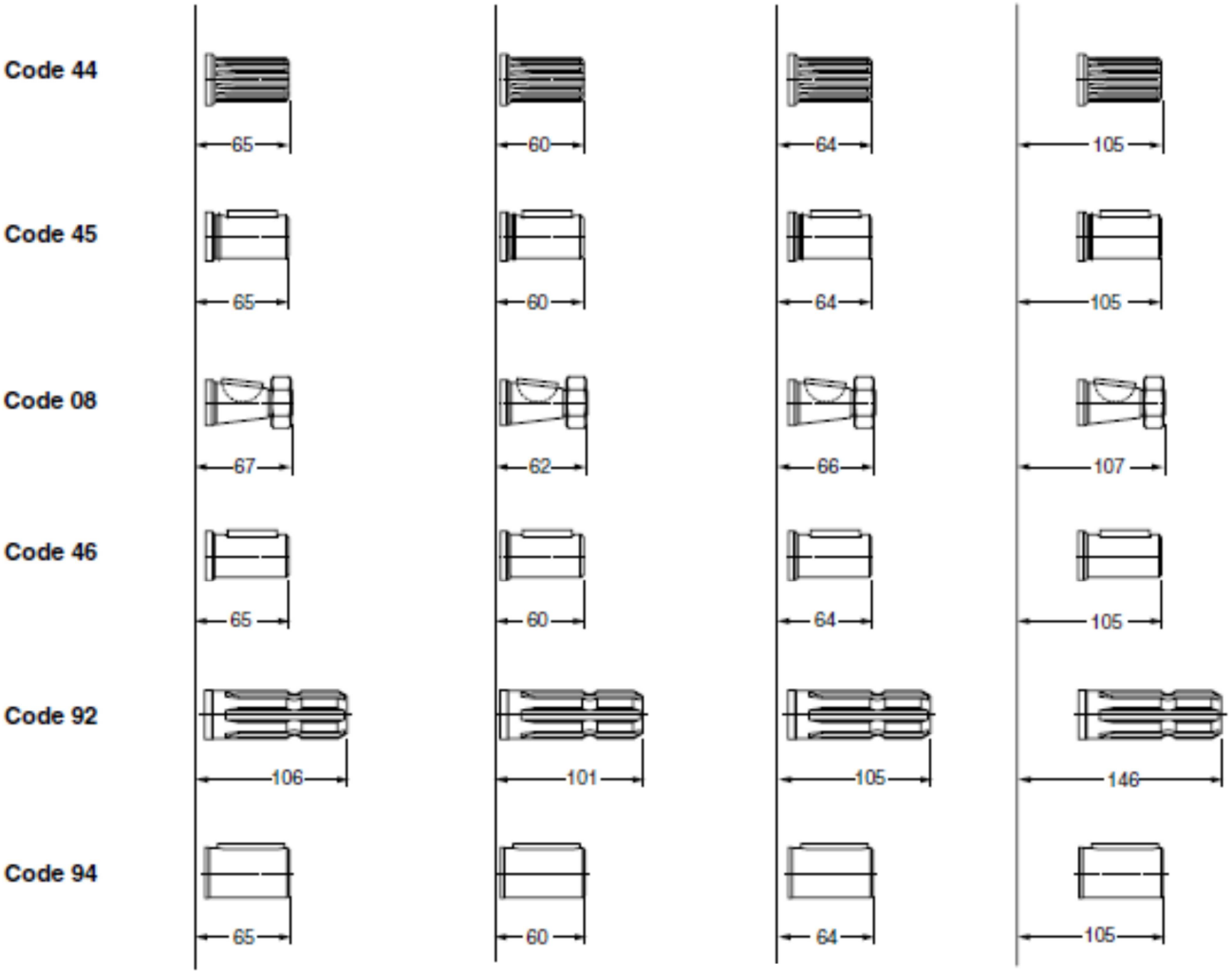


Code 94



Coupling Shafts — Series TG

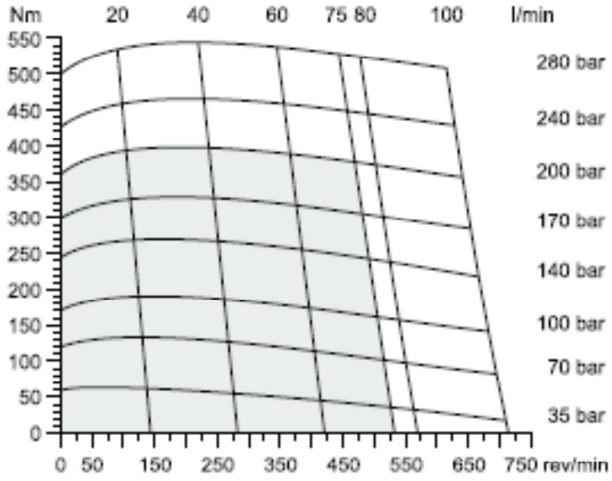




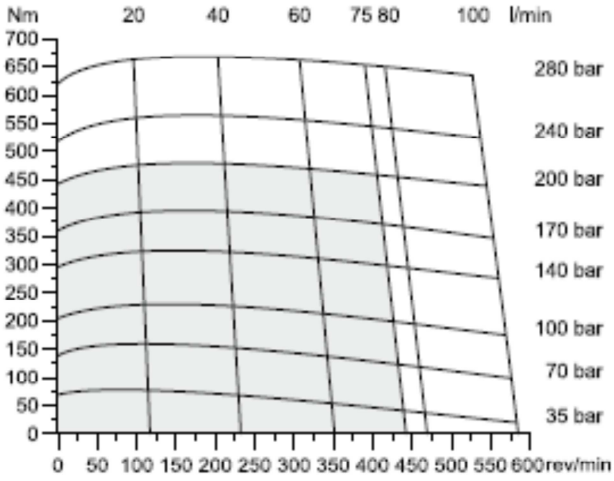
Diagrams

Series TG

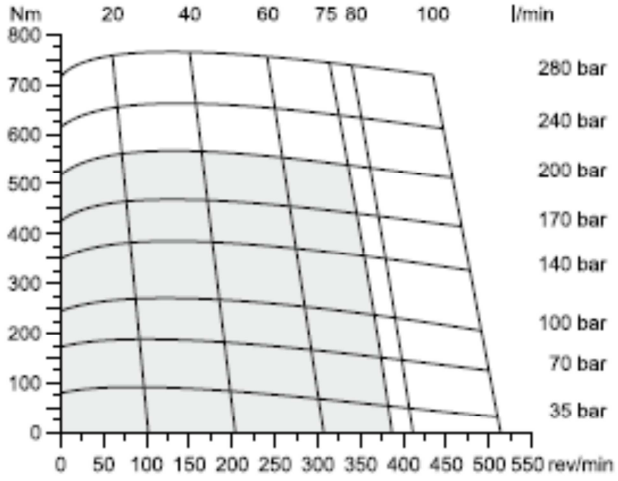
TG 140



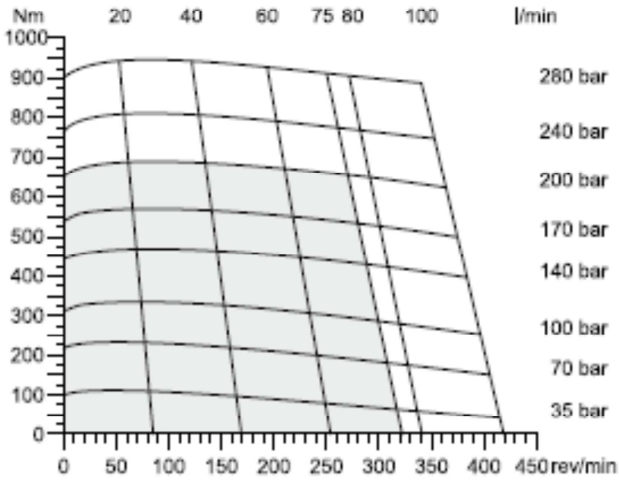
TG 170



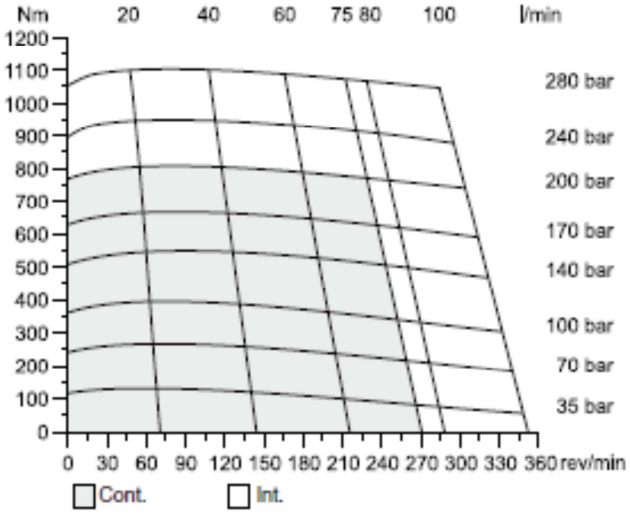
TG 195



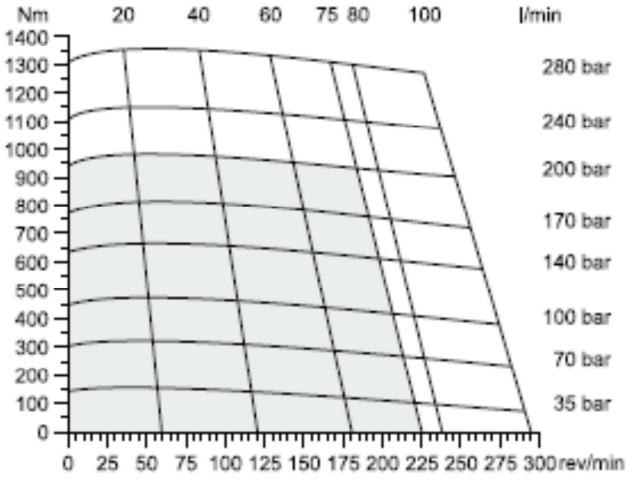
TG 240



TG 280



TG 335

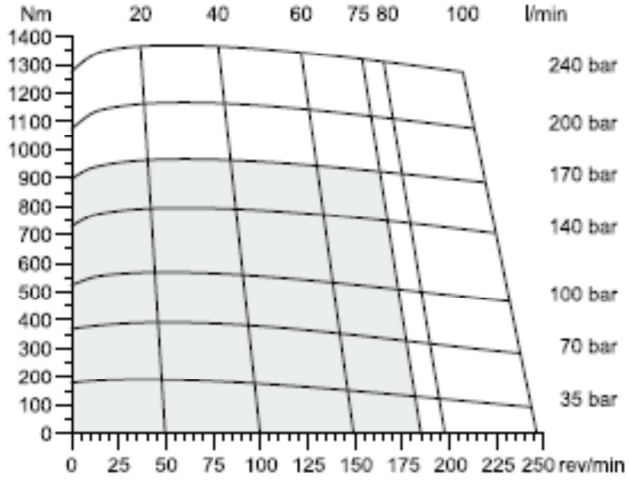


int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d´utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

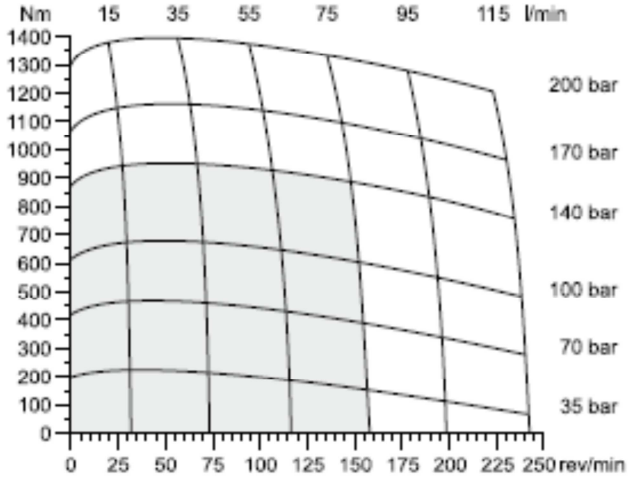
Diagrams

Series TG

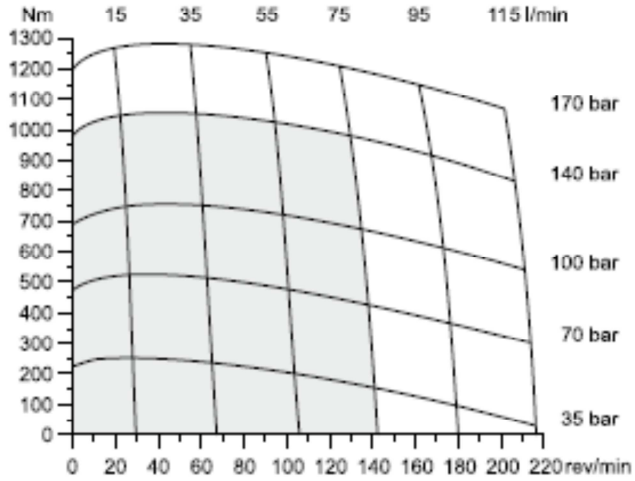
TG 405



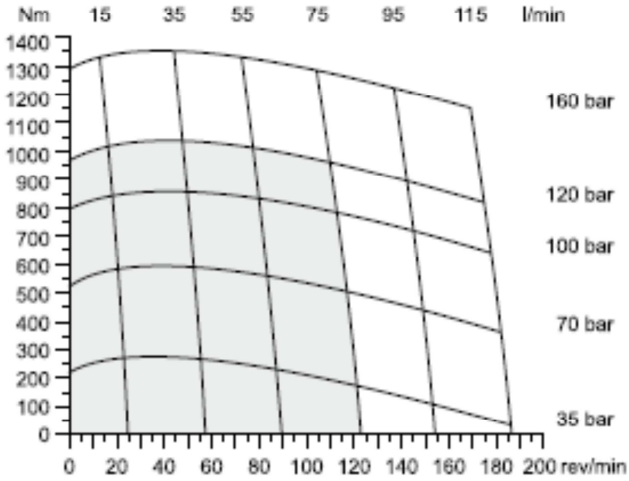
TG 475



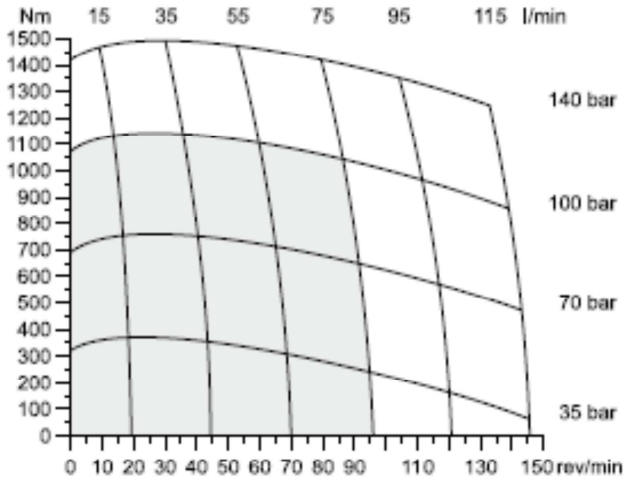
TG 530



TG 625

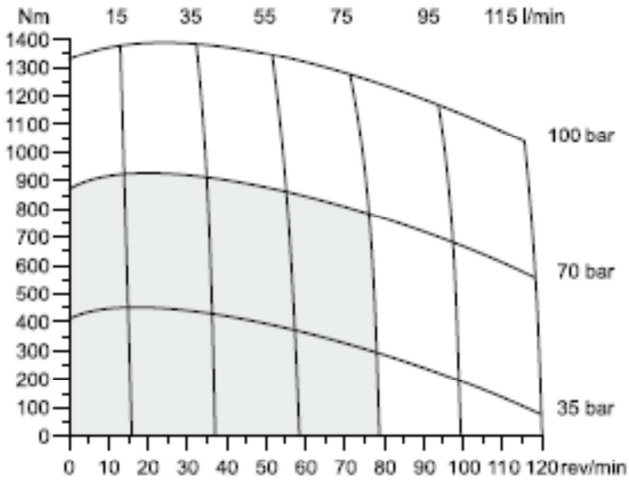


TG 785



☐ Cont. ☐ Int.

TG 960

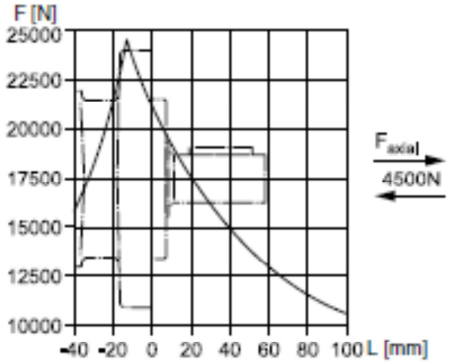


int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Life Time — Series TG

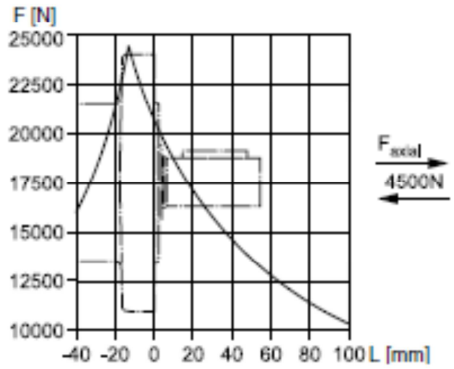
Code E

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}10 + \frac{L}{88mm}\right)}\right)^{3,2}}{n}$$



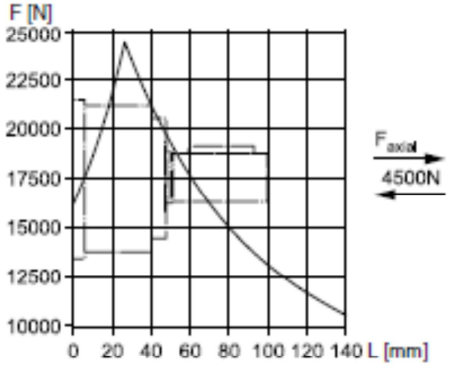
Code M

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}16 + \frac{L}{88mm}\right)}\right)^{3,3}}{n}$$



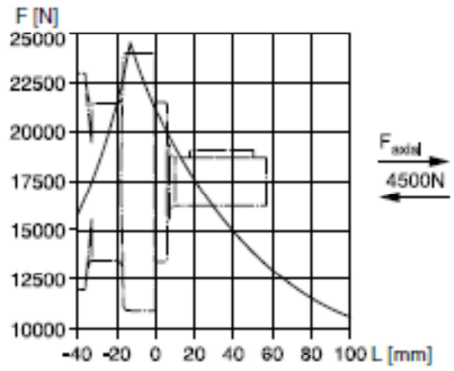
Code H

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(0{,}56 + \frac{L}{88mm}\right)}\right)^{3,3}}{n}$$



Code V

$$L_h = \frac{\left(\frac{670000}{F_R \cdot \left(1{,}11 + \frac{L}{88mm}\right)}\right)^{3,3}}{n}$$



Die Lebensdauer der Radiallager (L_h in Stunden) lässt sich nach folgender Formel berechnen. Die Größe F_R ist durch die mechanische Festigkeit der Abtriebswelle begrenzt (siehe Diagramm). Das Maß "L" ist das Längenmaß vom Gehäuseflansch bis zum Angriffspunkt der Radialkraft F_R.

La durée de vie des roulements radiaux (L_h en heures) peut être calculée par les formules suivantes. La grandeur F_R est limitée par les résistances mécaniques de l`arbre de sortie (voir diagramme). La cote "L" est la longueur entre la bride du carter jusqu`au point d`appui de l`effort radial F_R.

Life time (L_h in hours) of the radial bearings can be calculated with the following formula. The value F_R is limited by the mechanical strength of the shaft (see diagram). The measurement "L" is the length from the housing flange up to the point of impact of the radial force F_R.

La durata dei cuscinetti (L_h in ore) può essere calcolata con la seguente formula. Il valore F_R è limitato dalla resistenza meccanica dell`albero (vedi diagramma). La quota "L" è la distanza tra la flangia del corpo ed il punto di applicazione della forza radiale F_R.

Vorstehende Formeln gelten für eine B10-Lebensdauer.	L_h	=	[h]
The preceding formulas are valid for a B10 duration of life.	L	=	[mm]
Les formules prècèdentes sont valables pour une durèe de vie B10.	F_R	=	F [N]
Le formule precedenti sono valide per una durata della vita B10.	n	=	[rev/min]

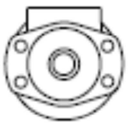
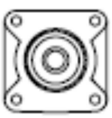
Ordering Code

Series TG

TG	☐☐☐☐	☐	☐	☐☐	☐	A A A B
Serie Series Série Serie	Schluckvolumen Displacement Cylindrée Cilindrata	Gehäuse Housing Carter Corpo motore	Anschluss Ports Plan de raccordement Connessioni	Welle Shaft Arbre Albero	Drehrichtung Direction of rotation Direction de rotation Direzione di rotazione	Option

For further options different to standard 'AAAB' see page 57.

Code	cm^3/rev
0140	140
0170	169
0195	195
0240	237
0280	280
0335	337
0405	405
0475	476
0530	529
0625	624
0785	786
0960	958

Code	Housing
E	
M	
H	
V 1)	

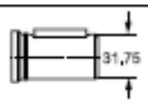
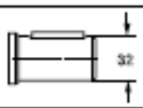
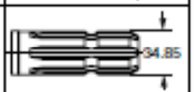
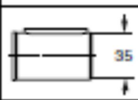
1) Nur verfügbar mit Endanschluss
Only possible with rear port
Possible seulement avec orifice arrière
Possible solo con connessioni posteriori

Code	Front port
W	G 1/2
V	7/8-14 UNF O-Ring
N 2)	Universal M8x13
K 3)	Universal M6x13

2) Nicht verfügbar für Gehäuse "H"
Not possible for housing "H"
Pas disponible pour carter "H"
Non Disponibile con il corpo codice "H"

3) Nicht verfügbar für Gehäuse "M, E, V"
Not possible for housing "M, E, V"
Pas disponible pour carter "M, E, V"
Non disponibile con il corpo codice "M, E, V"

Code	Rear port
Y	G 1/2 Axial
A	7/8-14 UNF Axial
X	G 1/2 Radial
B	7/8-14 UNF Radial
L	Universal Radial M8x13

Code	Shaft
44	 Pitch 12/24
45	 31,75
08	
46	 32
92	 34.85
94	 35

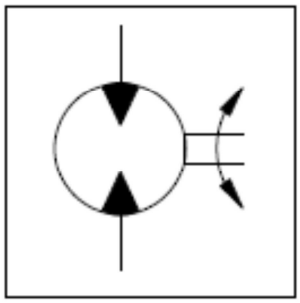
Code	Front port
0	B A  Standard
1	B A 

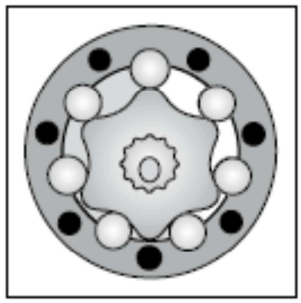
Code	Rear port
0	B A  Standard
1	B A 

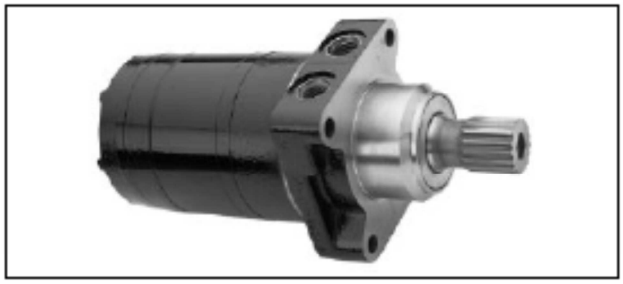
Performance

Series TH

Drehzahl Speed Vitesse de rotation Velocità di rotazione	5...710 rev/min
Schluckstrom Oil flow Débit d'huile Portata	max. 115 l/min
Eingangsdruck Supply pressure Pression entrée Pressione in entrata	max. 300 bar
Drehmoment Torque Couple Coppia	max. 1490 Nm
Seitenlast Side load Charges latérales Carico radiale	max. 30.000 N







Motor series TF	Geom. Schluckvolumen Geometric displacement Cylindrée Cilindrata [cm^3/U] [cm^3/rev]	Max. Drehzahl Max. speed Vitesse de rotation maxi Velocità di rotazione max cont / int [U/min] [rev/min]	Max. Schluckstrom Max. oil flow Débit d'huile maxi Portata max cont / int [l/min]	Max. Druckdifferenz * Max. differential pressure * Chute de pression maxi * Caduta di pressione max * cont / int [bar]	Max. Eingangsdruck Max. supply pressure Pression maxi entrée Pressione max in entrata max [bar]	Max. Drehmoment Max. torque Couple maxi Coppia max cont / int [Nm]	Max. Leistungsabgabe Max. performance Puissance de sortie maxi Potenza meccanica max cont / int [KW]	Min. Anlaufmoment Min. starting torque Couple min. fournit au démarrage Coppia min. di spunto cont / int [Nm]
TH 140	141	530/710	75/100	210/280	300	400/545	33	320/436
TH 170	169	440/575	75/100	210/280	300	485/670	33	388/536
TH 195	195	380/510	75/100	210/280	300	560/770	33	448/616
TH 240	238	320/420	75/100	210/280	300	685/945	32	548/756
TH 280	280	270/350	75/100	210/280	300	800/1100	31	675/880
TH 335	337	225/290	75/100	210/280	300	980/1350	30	784/1080
TH 405	405	185/245	75/100	170/240	300	960/1350	27	791/1145
TH 475	477	160/240	75/115	140/210	300	960/1400	28	768/1120
TH 530	529	140/215	75/115	140/170	300	1050/1280	23	874/1091
TH 625	613	120/185	75/115	120/160	300	1040/1360	20	895/1165
TH 785	786	95/145	75/115	100/140	300	1150/1490	17	991/1341
TH 960	959	78/119	75/115	70/100	300	925/1390	12	763/1177

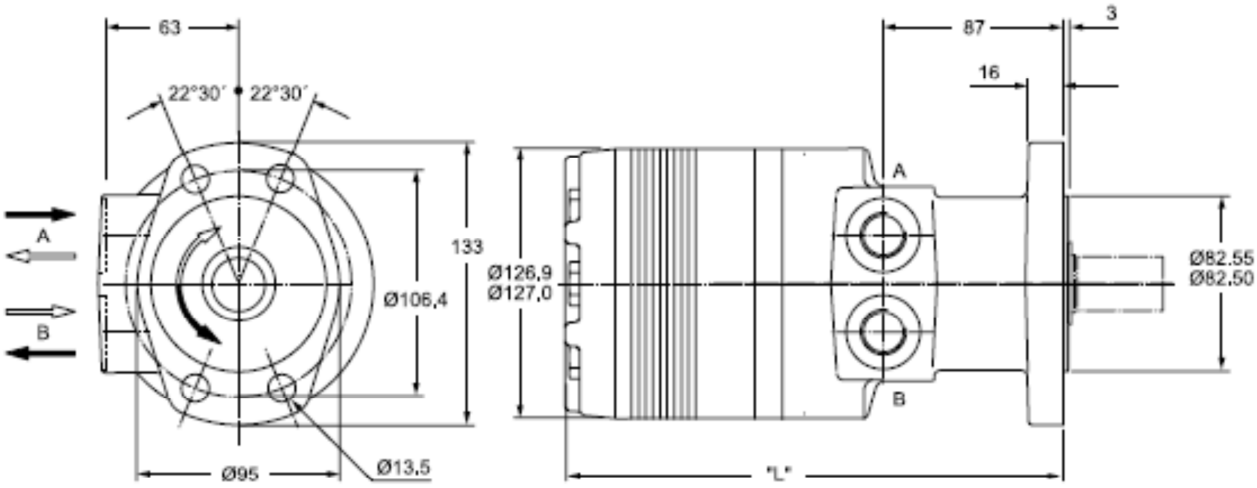
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

* Druckdifferenz Δp zwischen Ein- und Ausgang
* Pressure difference is Δp between input and output
* La différence de pression est Δp entre l'entrée et la sortie
* La differenza di pressione corrisponde al Δp tra ingresso e uscita

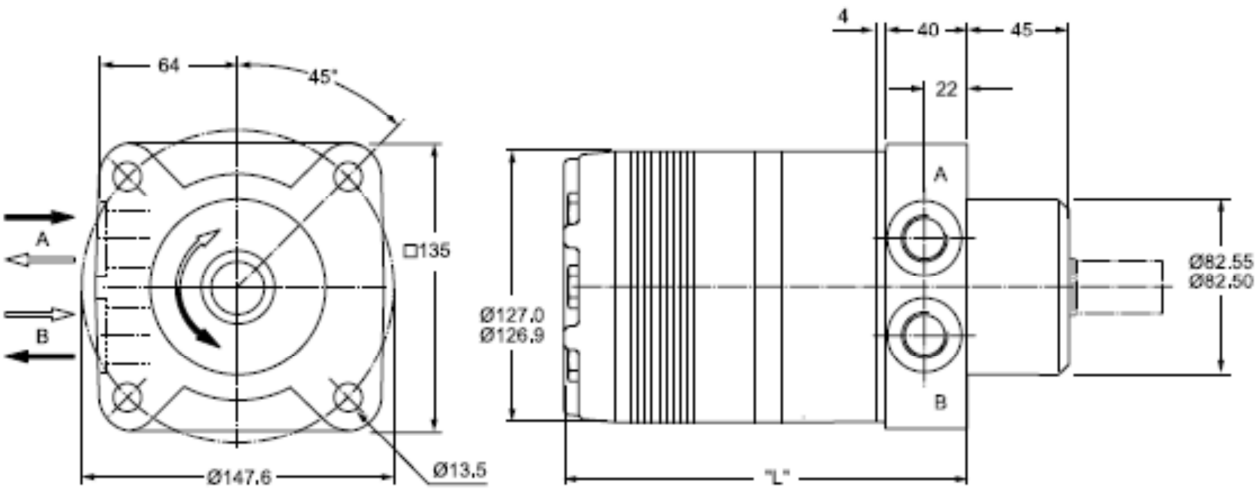
Achtung: Höhere Drücke auf Anfrage möglich.
Notice: Higher pressures are possible on request.
Remarque : des pressions supérieures sont possibles sur demande.
Nota: Pressioni superiori possibili su richiesta.

Housing Series TH

Code M



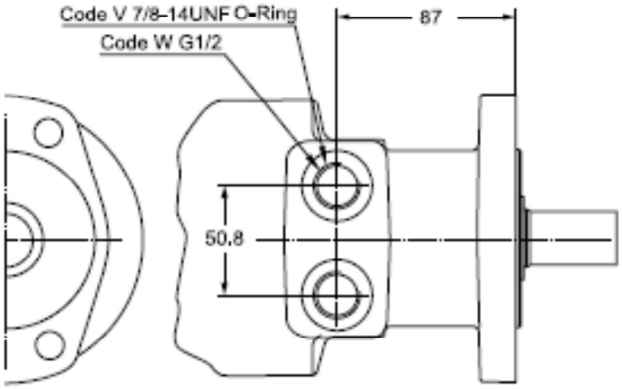
Code U

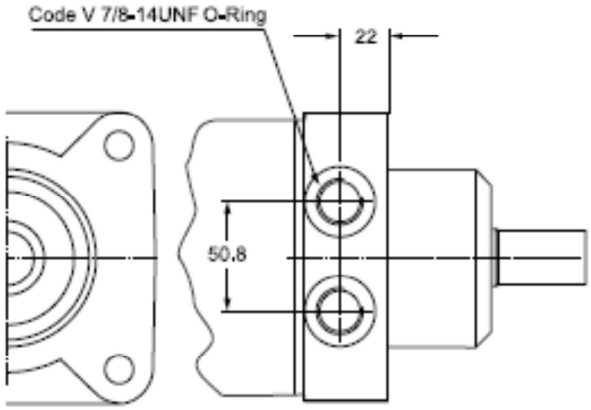


Gewicht / Weight		TH140	TH170	TH195	TH240	TH280	TH335	TH405	TH475	TH530	TH625	TH785	TH960
Poids /	Peso [kg]	17.0	17.2	17.4	17.8	18.2	18.6	19.2	19.8	20.6	21.3	22.9	24.5
Code M	"L" [mm]	216	219	222	227	232	238	245	254	260	270	289	308
Code U	"L" [mm]	173	177	180	184	189	196	203	212	218	227	246	265

Ports / Coupling Shafts Series TH

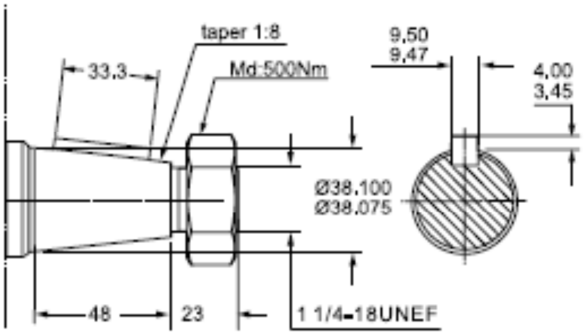
Ports



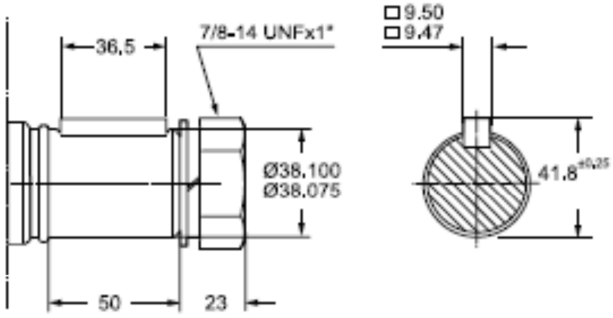


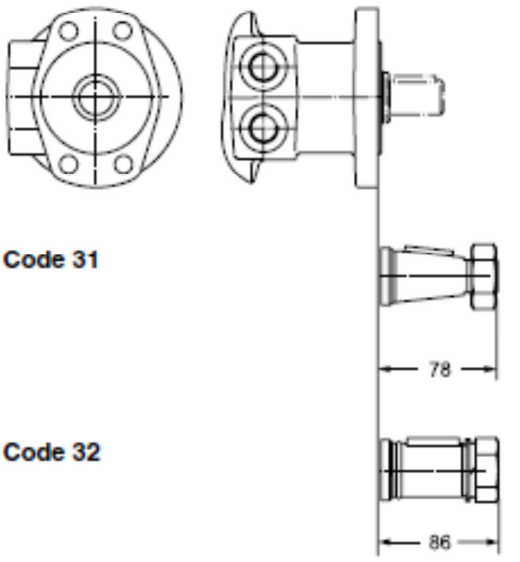
Coupling shaft

Code 31



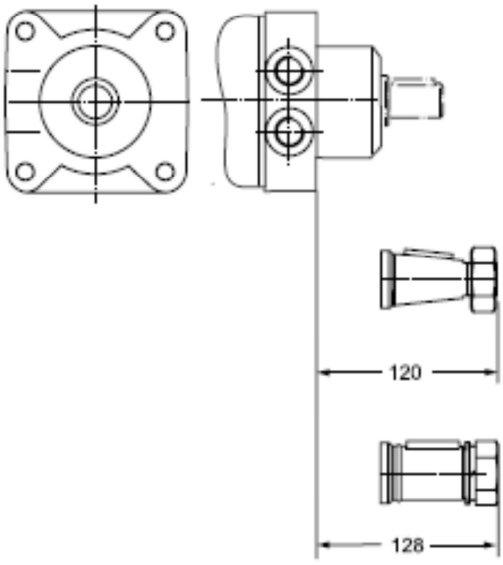
Code 32





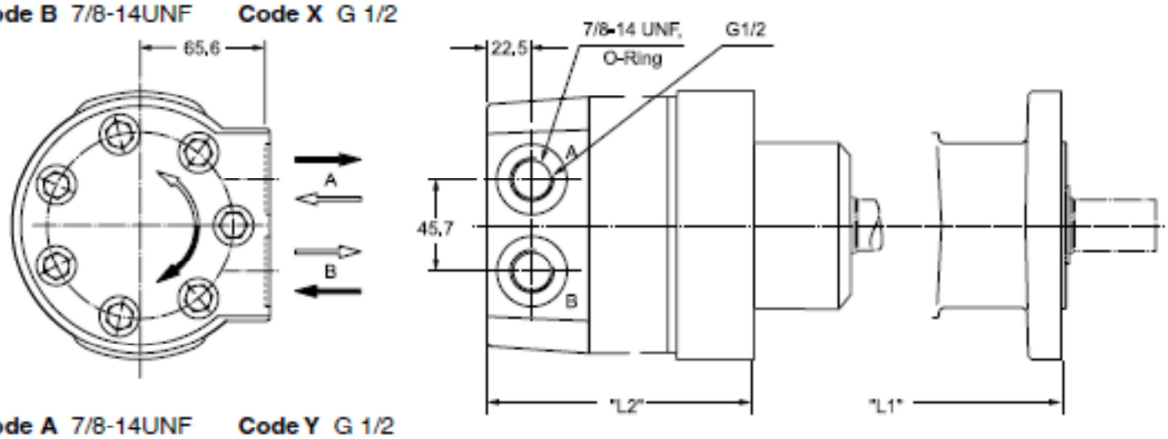
Code 31

Code 32

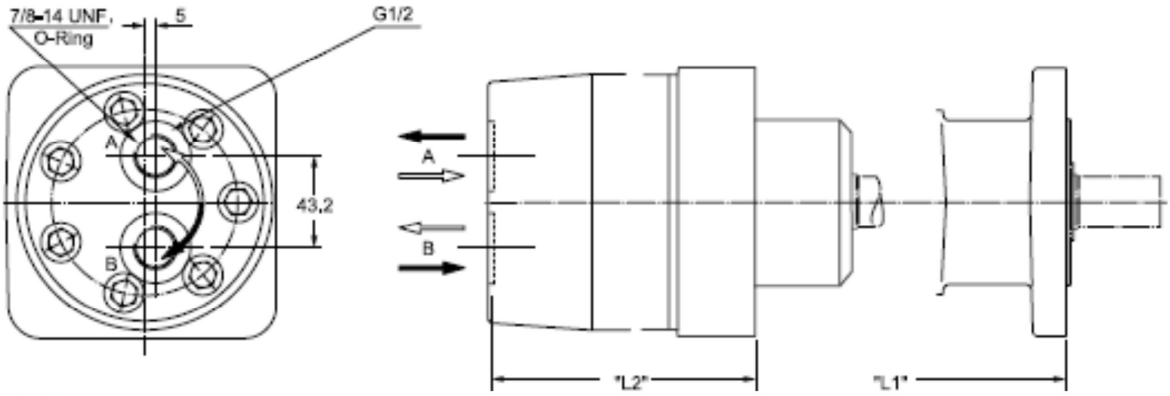


Rear Ports — Series TH

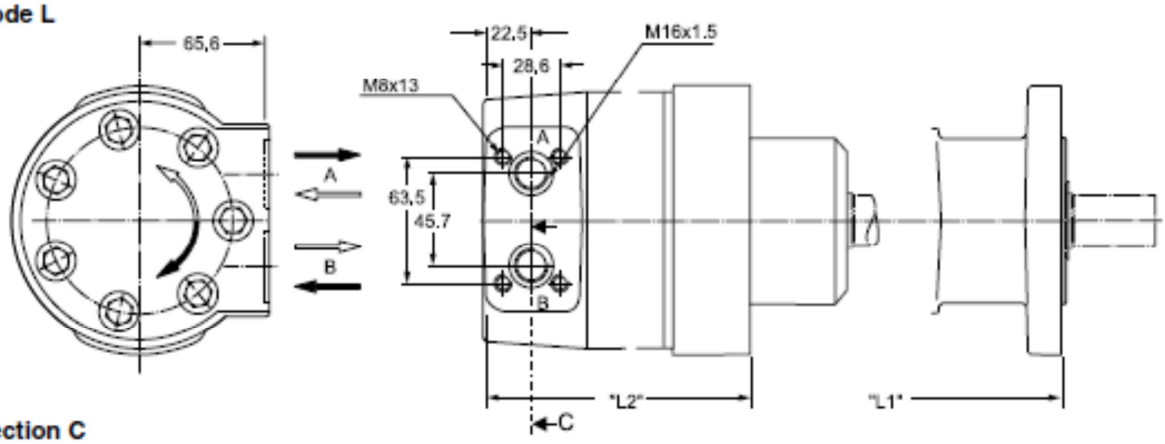
Code B 7/8-14UNF **Code X** G 1/2



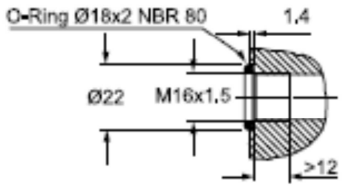
Code A 7/8-14UNF **Code Y** G 1/2



Code L



Section C

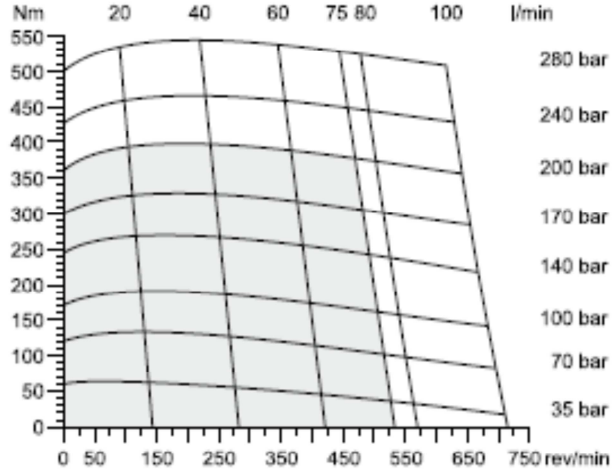


Zum Motor mit Universalanschluss werden 2 O-Ringe geliefert.
Motor with manifold mount is supplied with 2 O-rings.
Deux joints toriques sont livrés avec les moteurs au plan de raccordement universel.
Il blocchetto connessioni è corredato da 2 OR.

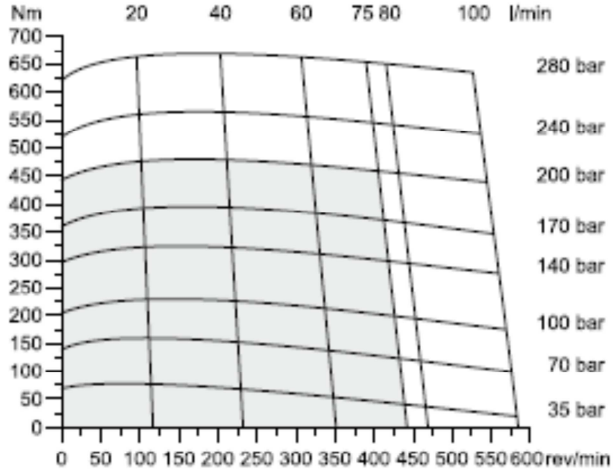
Gewicht / Weight		TH140	TH170	TH195	TH240	TH280	TH335	TH405	TH475	TH530	TH625	TH785	TH960
Poids /	Peso [kg]	18.6	18.8	19.0	19.4	19.8	20.2	20.8	21.4	22.2	22.9	24.5	26.1
Code	"L1" [mm]	241	244	247	252	257	263	270	279	285	295	314	333
B, X, L, A, Y	"L2" [mm]	198	202	205	209	214	221	228	237	243	252	271	290

Diagrams Series TH

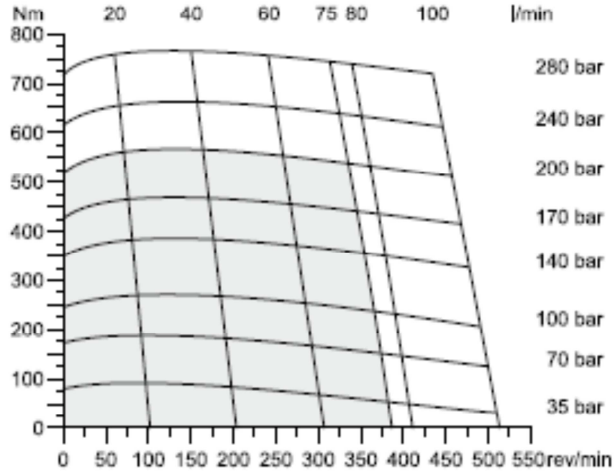
TH 140



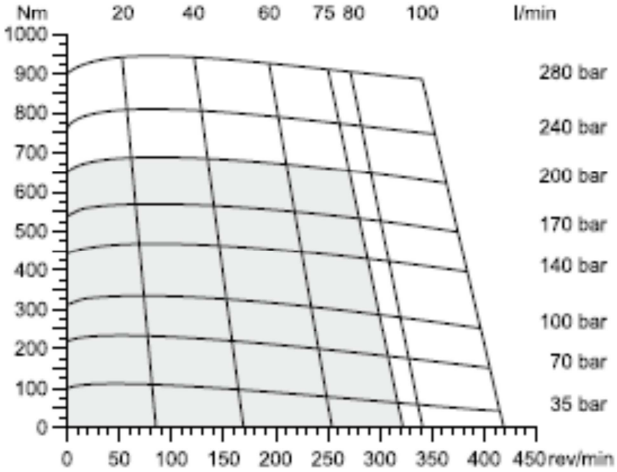
TH 170



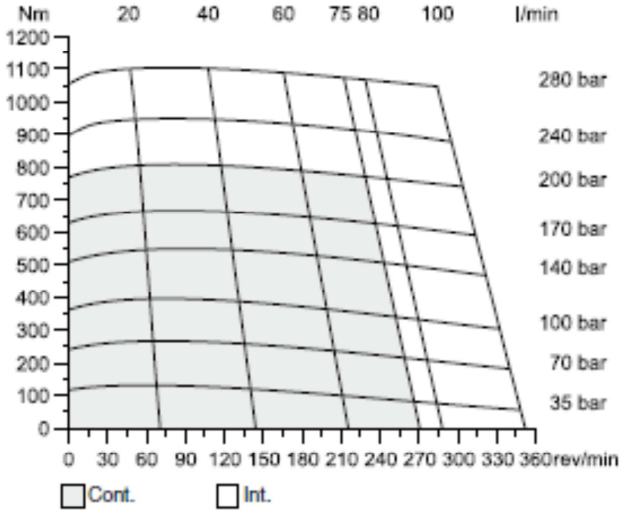
TH 195



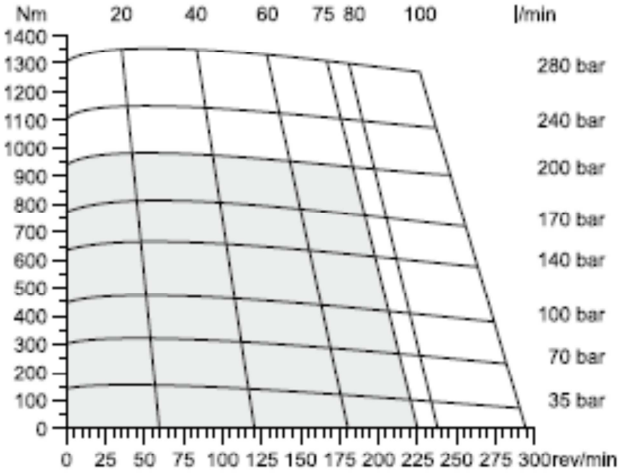
TH 240



TH 280



TH 335

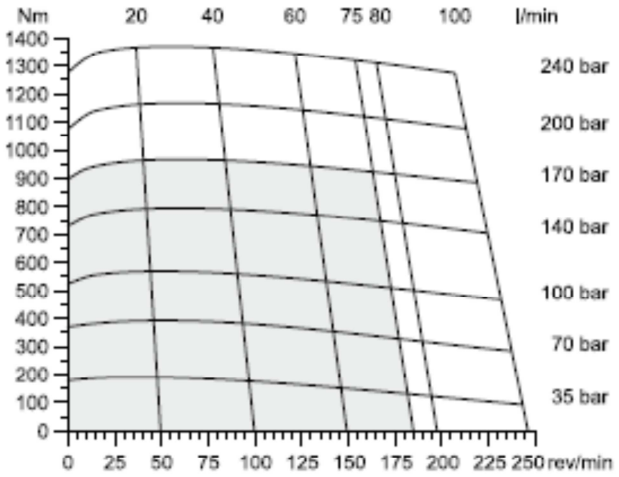


int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

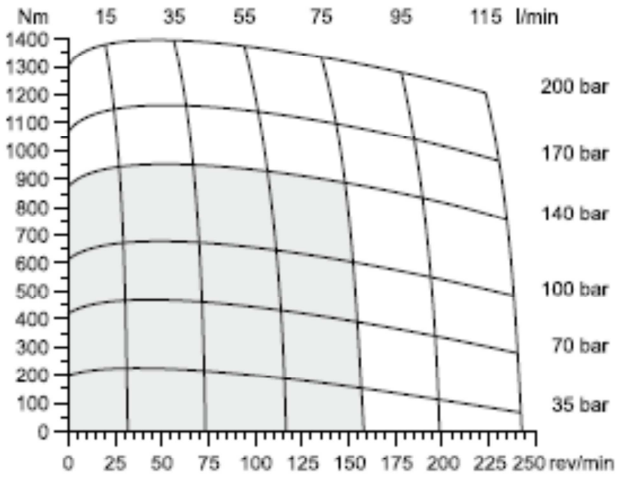
Diagrams

Series TH

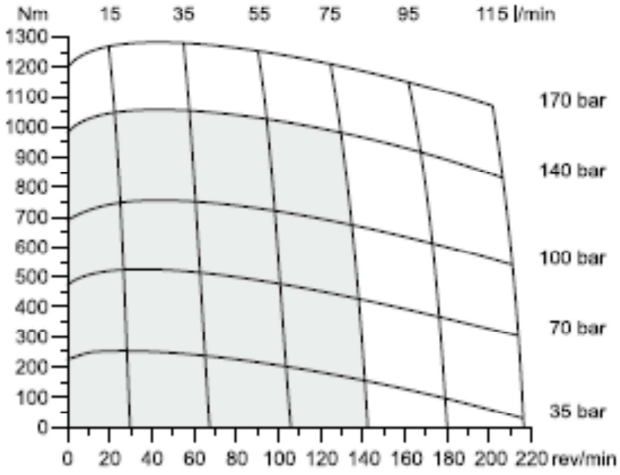
TH 405



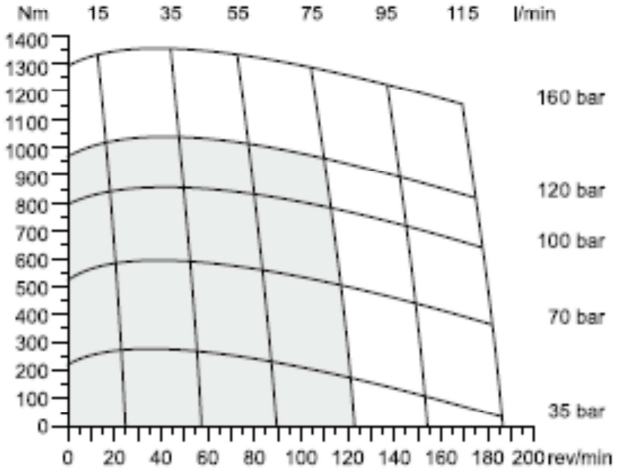
TH 475



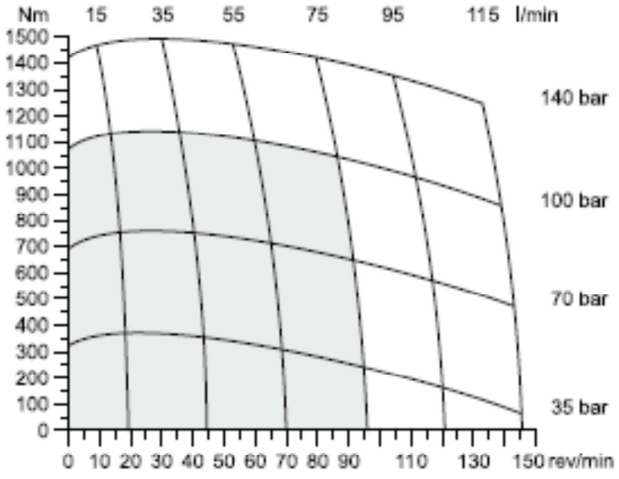
TH 530



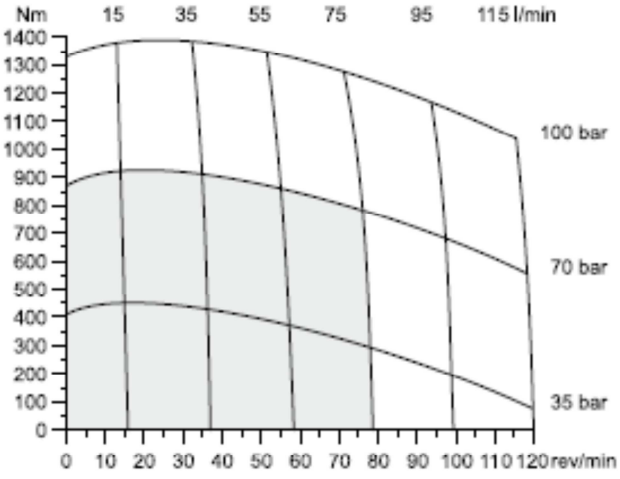
TH 625



TH 785



TH 960

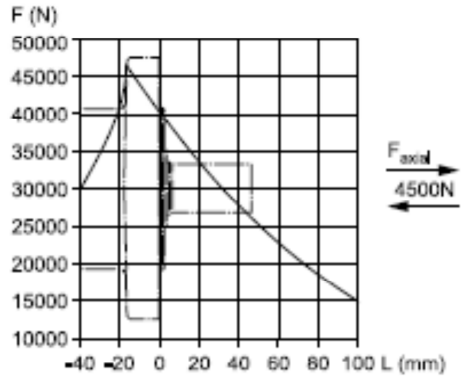


int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Life Time

Series TH

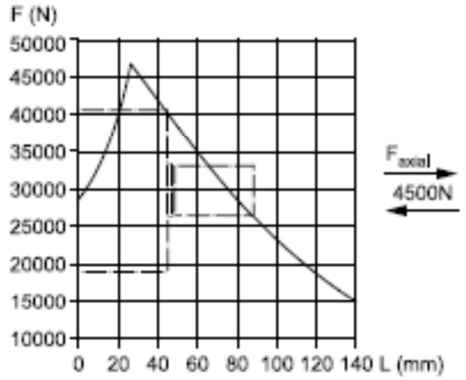
Code M



F_{Radial} [N]

$$L_h = \frac{\left(\frac{1500000}{F_R \cdot \left(1{,}20 + \frac{L}{95mm}\right)}\right)^{3{,}3}}{n}$$

Code U



F_{Radial} [N]

$$L_h = \frac{\left(\frac{1500000}{F_R \cdot \left(0{,}76 + \frac{L}{95mm}\right)}\right)^{3{,}3}}{n}$$

Die Lebensdauer der Radiallager (L_h in Stunden) lässt sich nach folgender Formel berechnen. Die Größe F_R ist durch die mechanische Festigkeit der Abtriebswelle begrenzt (siehe Diagramm). Das Maß "L" ist das Längenmaß vom Gehäuseflansch bis zum Angriffspunkt der Radialkraft F_R.

Life time (L_h in hours) of the radial bearings can be calculated with the following formula. The value F_R is limited by the mechanical strength of the shaft (see diagram). The measurement "L" is the length from the housing flange up to the point of impact of the radial force F_R.

La durée de vie des roulements radiaux (L_h en heures) peut être calculée par les formules suivantes. La grandeur F_R est limitée par les résistances mécaniques de l`arbre de sortie (voir diagramme). La cote "L" est la longueur entre la bride du carter jusqu`au point d`appui de l`effort radial F_R.

La durata dei cuscinetti (L_h in ore) può essere calcolata con la seguente formula. Il valore F_R è limitato dalla resistenza meccanica dell`albero (vedi diagramma). La quota "L" è la distanza tra la flangia del corpo ed il punto di applicazione della forza radiale F_R.

Vorstehende Formeln gelten für eine B10-Lebensdauer.
The preceding formulas are valid for a B10 duration of life.
Les formules prècèdentes sont valables pour une durèe de vie B10.
Le formule precedenti sono valide per una durata della vita B10.

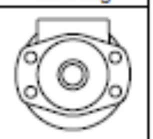
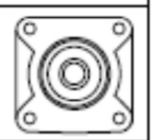
L_h = [h]
L = [mm]
n = [rev/min]

Ordering Code

Series TH

TH	☐☐☐☐	☐	☐	☐☐	☐	A A A B
Serie Series Série Serie	Schluckvolumen Displacement Cylindrée Cilindrata	Gehäuse Housing Carter Corpo motore	Anschluss Ports Plan de raccorde-ment Connessioni	Welle Shaft Arbre Albero	Drehrichtung Direction of rotation Direction de rotation Direzione di rotazione	Option

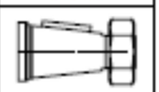
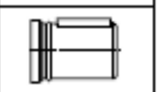
Code	cm³/rev
0140	140
0170	169
0195	195
0240	237
0280	280
0335	337
0405	405
0475	476
0530	529
0625	624
0785	786
0960	958

Code	Housing
M	
U	

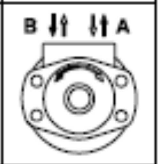
Code	Front port
S	7/8-14 UNF O-Ring
W [1]	G 1/2

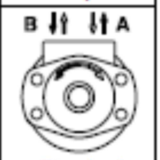
[1] Nicht verfügbar für Gehäuse "U"
Not possible for housing "U"
Pas disponible pour carter "U"
Non Disponibile con il corpo codice "U"

Code	Rear port
Y	G 1/2 Axial
A	7/8-14 UNF Axial
X	G 1/2 Radial
B	7/8-14 UNF Radial
L	Universal Radial M8x13

Code	Shaft
31	
32	

For further options different to standard 'AAAB' see page 57.

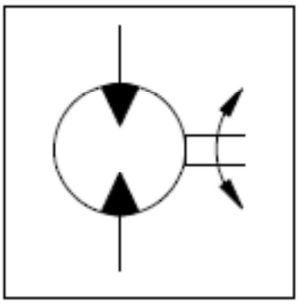
Code	Front port
0	 Standard
1	

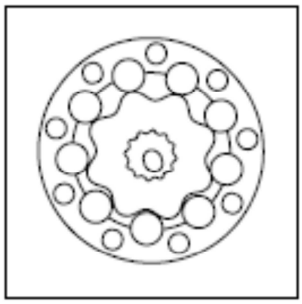
Code	Rear port
0	 Standard
1	

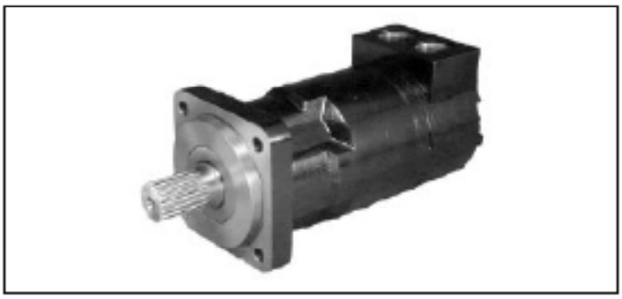
Performance

Series TK

Drehzahl Speed Vitesse de rotation Velocità di rotazione	5...520 rev/min
Schluckstrom Oil flow Débit d'huile Portata	max. 225 l/min
Eingangsdruck Supply pressure Pression entrée Pressione in entrata	max. 330 bar
Drehmoment Torque Couple Coppia	max. 2700 Nm
Seitenlast Side load Charges latérales Carico radiale	max. 26.000 N







Motor series TF	Geom. Schluckvolumen Geometric displacement Cylindrée Cilindrata [cm³/U] [cm³/rev]	Max. Drehzahl Max. speed Vitesse de rotation maxi Velocità di rotazione max cont / int [U/min] [rev/min]	Max. Schluckstrom Max. oil flow Débit d'huile maxi Portata max cont / int [l/min]	Max. Druckdifferenz * Max. differential pressure * Chute de pression maxi * Caduta di pressione max * cont / int [bar]	Max. Eingangsdruck Max. supply pressure Pression maxi entrée Pressione max in entrata max [bar]	Max. Drehmoment Max. torque Couple maxi Coppia max cont / int [Nm]	Max. Leistungsabgabe Max. performance Puissance de sortie maxi Potenza meccanica max cont / int [KW]	Min. Anlaufmoment Min. starting torque Couple min. fourni au dé marrage Coppia min. di spunto cont / int [Nm]
TK 250	250	523	114/133	240/310	330	815/1043	49	690/880
TK 315	315	413	114/133	240/310	330	1030/1315	47	950/1220
TK 400	400	373	114/151	205/275	330	1150/1525	49	1050/1410
TK 500	500	300	114/151	205/275	330	1440/1915	48	1320/1780
TK 630	630	240	114/151	205/225	330	1620/1715	34	1500/1620
TK 800	800	276	151/227	190/205	330	1915/2300	44	1740/1900
TK 1000	1000	220	151/227	175/190	330	2410/2660	35	1980/2180

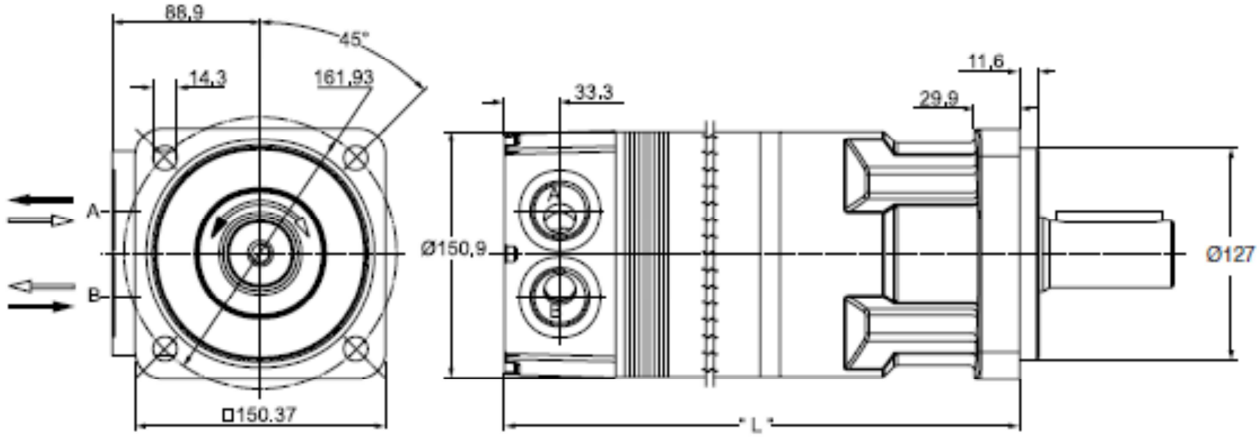
int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d'utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

* Druckdifferenz Δp zwischen Ein- und Ausgang
* Pressure difference is Δp between input and output
* La différence de pression est Δp entre l'entrée et la sortie
* La differenza di pressione corrisponde al Δp tra ingresso e uscita

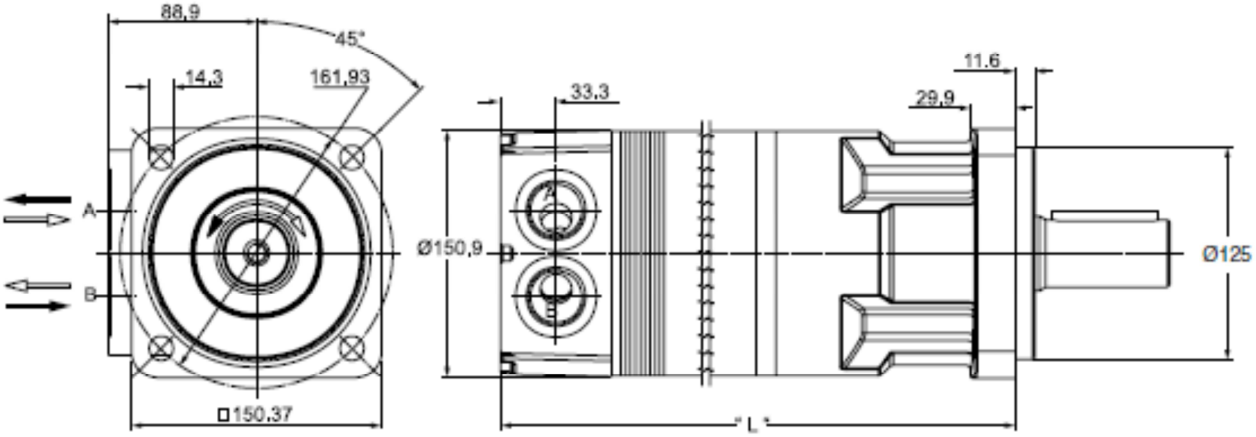
Achtung: Höhere Drücke auf Anfrage möglich.
Notice: Higher pressures are possible on request.
Remarque : des pressions supérieures sont possibles sur demande.
Nota: Pressioni superiori possibili su richiesta.

Housing Series TK

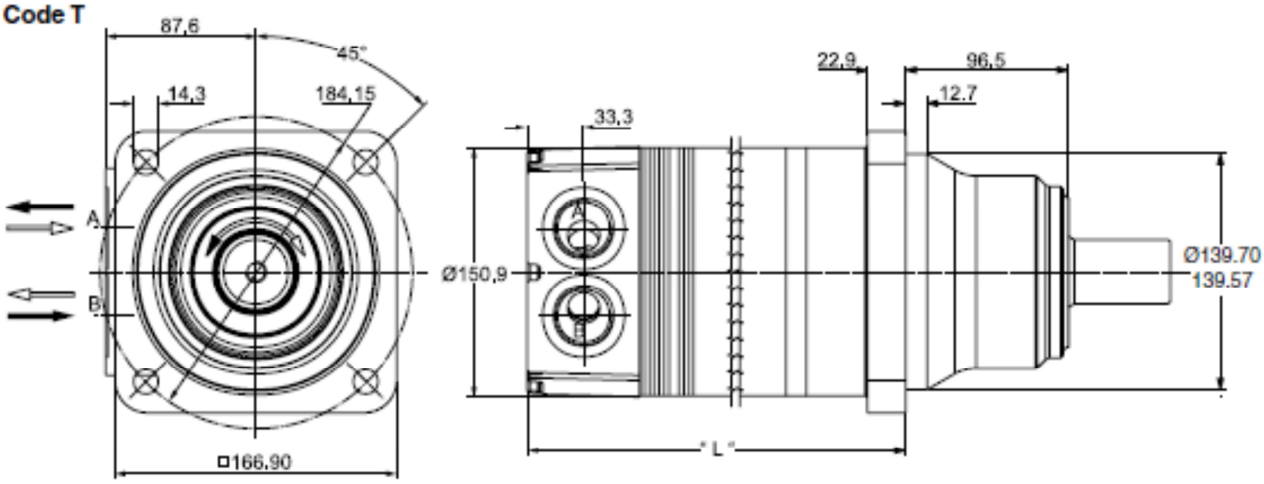
Code K



Code R



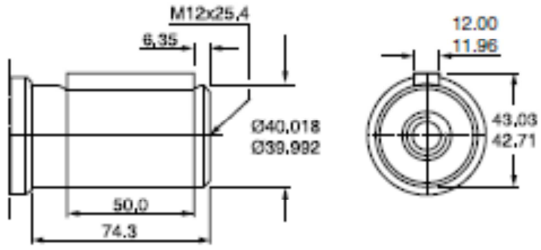
Code T



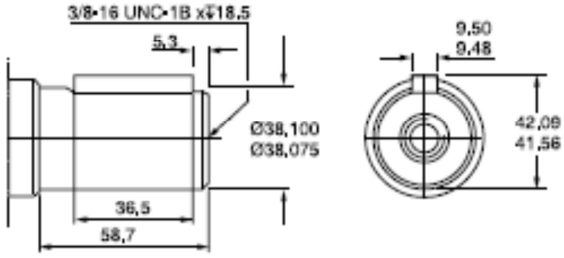
Gewicht / Weight / Poids / Peso		TK250	TK315	TK400	TK500	TK630	TK800	TK1000
Code K, R	[kg]	32.0	32.7	33.5	34.5	35.7	37.2	39.1
Code T		30.8	31.4	32.3	33.2	34.5	36.0	37.9
Code K, R	"L" [mm]	277	282	290	297	310	323	340
Code T		191	196	203	213	224	239	257

Coupling Shafts — Series TK

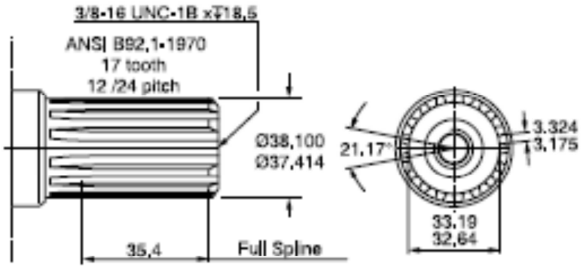
Code 64



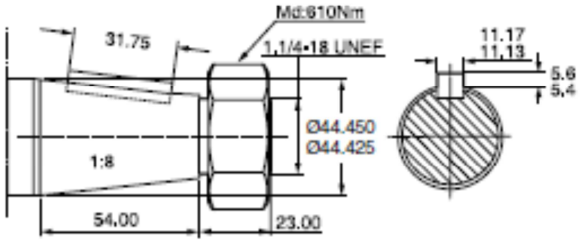
Code 32

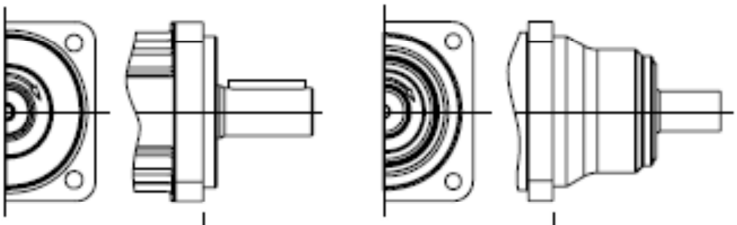


Code 36



Code 63





Code 64

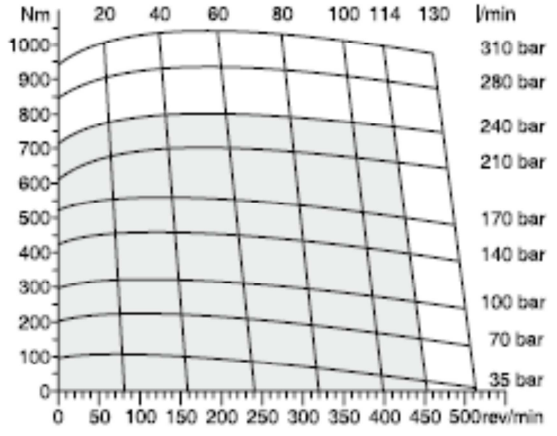
Code 32

Code 36

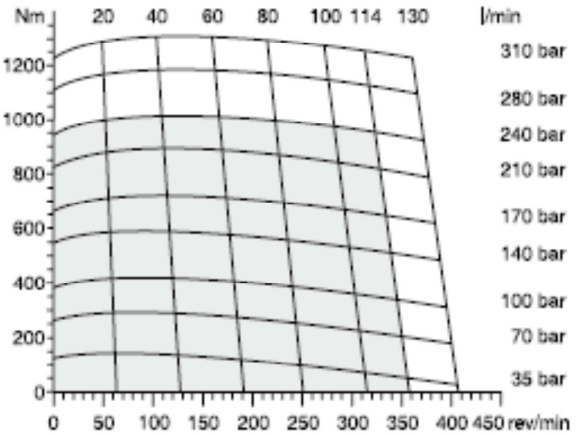
Code 63

Diagrams Series TK

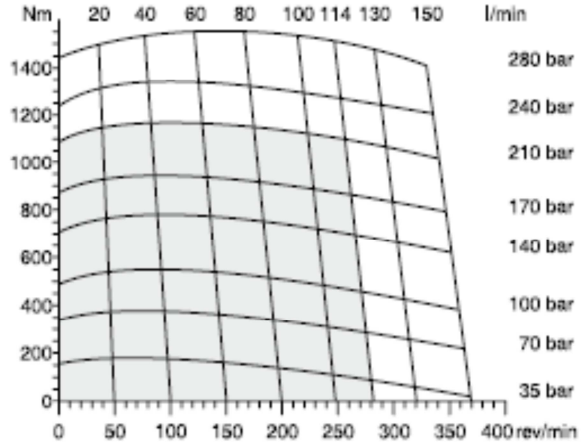
TK 250



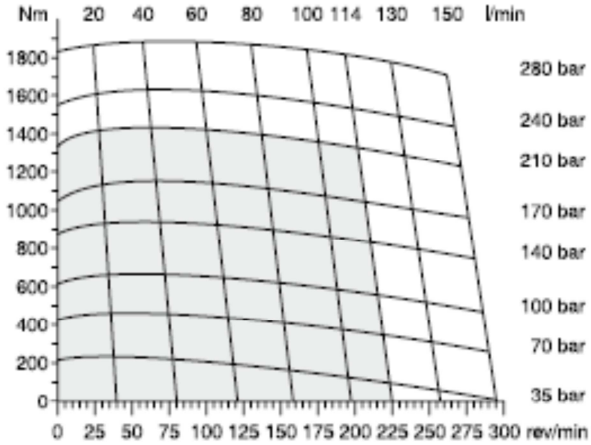
TK 315



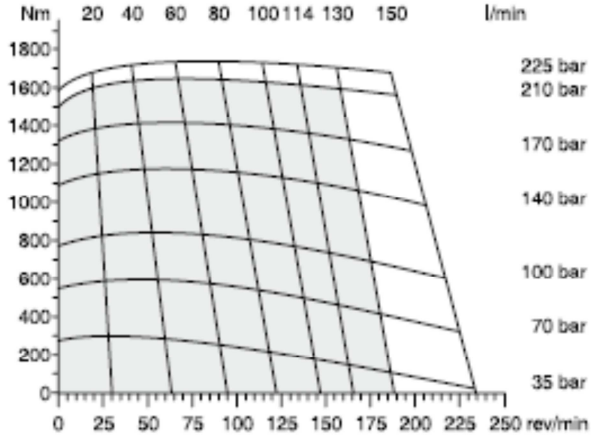
TK 400



TK 500

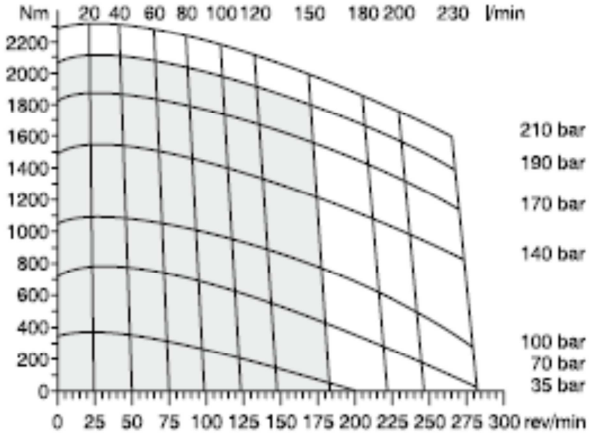


TK 630



☐ Cont. ☐ Int.

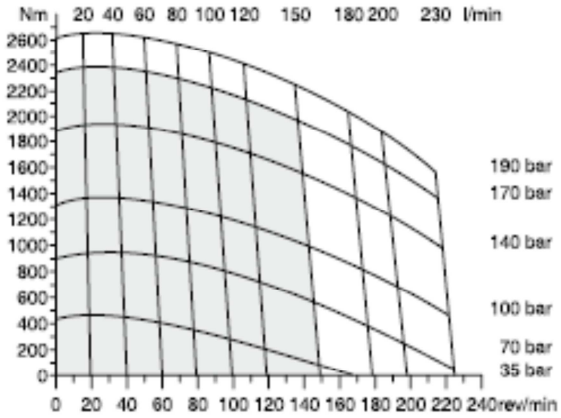
TK 800



int. =
Intermittierende Werte maximal: 10% von jeder Betriebsminute.
Intermittent operation rating applies to 10% of every minute.
Fonctionnement interm.: 10% max. de chaque minute d´utilisation.
Servizio intermittente: 10% max di ogni minuto di utilizzazione.

Diagrams / Life Time — Series TK

TK 1000



Life Time

Die Lebensdauer der Radiallager (L_h in Stunden) lässt sich nach folgender Formel berechnen. Die Größe F_R ist durch die mechanische Festigkeit der Abtriebswelle begrenzt (siehe Diagramm). Das Maß "L" ist das Längenmaß vom Gehäuseflansch bis zum Angriffspunkt der Radialkraft F_R.

Life time (L_h in hours) of the radial bearings can be calculated with the following formula. The value F_R is limited by the mechanical strength of the shaft (see diagram). The measurement "L" is the length from the housing flange up to the point of impact of the radial force F_R.

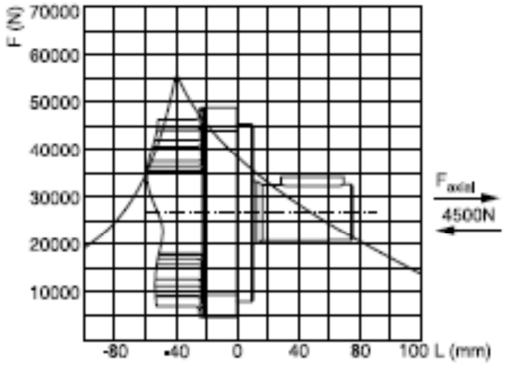
La durée de vie des roulements radiaux (L_h en heures) peut être calculée par les formules suivantes. La grandeur F_R est limitée par les résistances mécaniques de l`arbre de sortie (voir diagramme). La cote "L" est la longueur entre la bride du carter jusqu`au point d`appui de l`effort radial F_R.

La durata dei cuscinetti (L_h in ore) può essere calcolata con la seguente formula. Il valore F_R è limitato dalla resistenza meccanica dell`albero (vedi diagramma). La quota "L" è la distanza tra la flangia del corpo ed il punto di applicazione della forza radiale F_R.

Code K

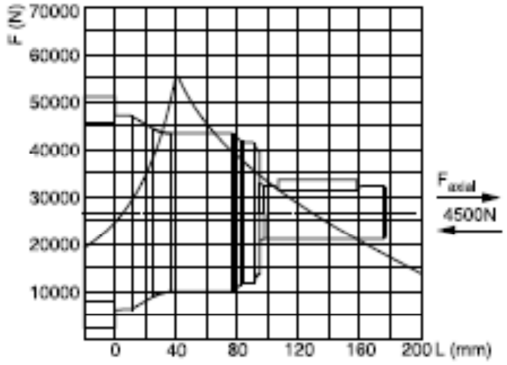
$$L_h = \frac{12 \cdot 10^6}{60 \cdot n} \left\{ \frac{F_a}{F_b} \right\}^{3,33}$$

F_{Radial} [N]



Code T

$$L_h = \frac{12 \cdot 10^6}{60 \cdot n} \left\{ \frac{F_a}{F_b} \right\}^{3,33}$$



Life in hours / Lebensdauer in Stunden	L_h	=	[h]
Shaft speed / Abtriebswellendrehzahl	n	=	[rev/min]
Allowable side load defined by above curve at a distance from mounting flange / Erlaubte radiale Wellenbelastung als Funktion der Länge	F_b	=	F [N]
Application side load / Anwendungsseitige Wellenbelastung			

Vorstehende Formeln gelten für eine B10-Lebensdauer. / The preceding formulas are valid for a B10 duration of life.
Les formules précédentes sont valables pour une durée de vie B10. / Le formule precedenti sono valide per una durata della vita B10.

Ordering Code — Series TK

TK															
												A	A	A	B

Serie / Series / Série / Serie

Schluckvolumen / Displacement / Cylindrée / Cilindrata

Gehäuse / Housing / Carter / Corpo motore

Anschluss / Ports / Plan de raccorde-ment / Connessioni

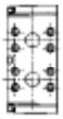
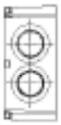
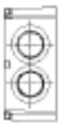
Welle / Shaft / Arbre / Albero

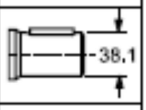
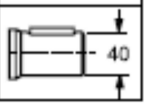
Drehrichtung / Direction of rotation / Direction de rotation / Direzione di rotazione

Option

Code	cm^3/rev
0250	250
0315	315
0400	400
0500	500
0630	630
0800	800
1000	1000

Code	Housing
K	
R[1)]	
T	

Code	Port
4	3/4 Split Flange Manifold 
5	1 5/16-12 SAE 
6	G3/4 

Code	Shaft
63	
32	 38,1
36	
64	 40

Code	Direction
0	 Standard
1	

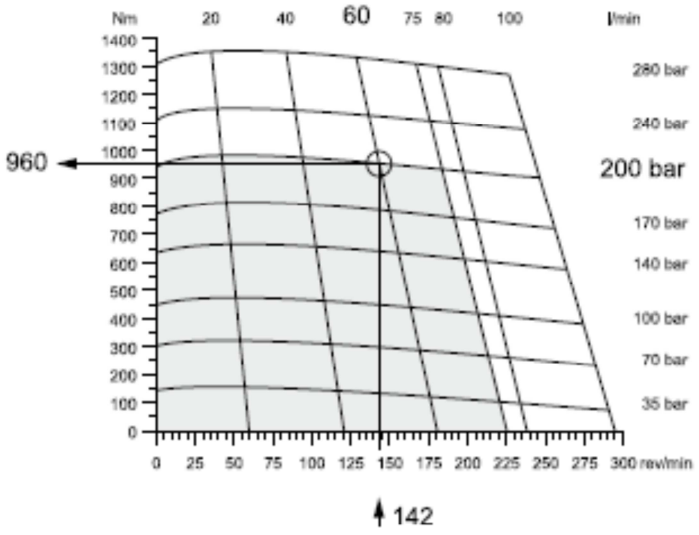
Example

Series TF / TG / TH / TK

Berechnung von Wirkungsgrad und Leistung
Calculation of efficiency and output power
Dètermination du rendement et de la puissance
Calcoli di rendimento e potenza utile

TG 335

Md = 960 Nm
n = 142 rev/min
Δp = 200 bar
V = 337 cm^3/rev
Q = 60 l/min



Hydraulisch-mechanischer Wirkungsgrad (η_{hm})
Hydraulic-mechanical efficiency
Rendemment hydro-mècanique
Rendimento idro-meccanico

$$\eta_{hm} = \frac{Md \cdot 20 \cdot \pi}{\Delta p \cdot V} = \frac{960 \cdot 20 \cdot \pi}{200 \cdot 337}$$

$\eta_{hm} = 0.89$

Volumetrischer Wirkungsgrad (η_{vol})
Volumtric efficiency
Rendement volumètrique
Rendimento volumetrico

$$\eta_{vol} = \frac{n \cdot V}{Q \cdot 10^3} = \frac{142 \cdot 337}{60 \cdot 10^3}$$

$\eta_{vol} = 0.80$

Gesamtwirkungsgrad (η_{ges})
Overall efficiency
Rendement global
Rendimento totale

$$\eta_{ges} = \eta_{vol} \cdot \eta_{hm} = 0.80 \cdot 0.89$$

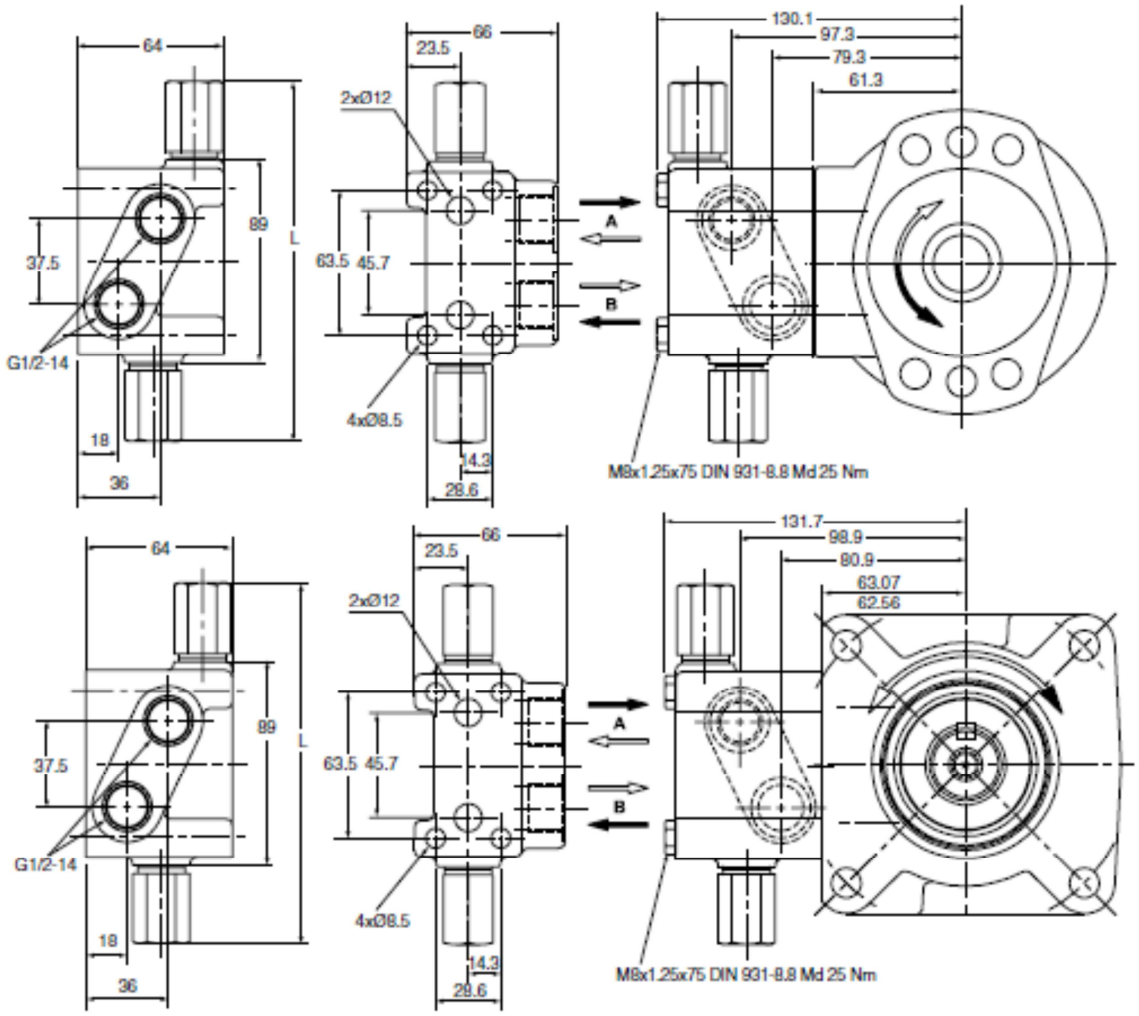
$\eta_{ges} = 0.71$

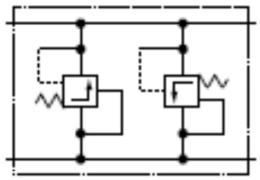
Leistung P (kW)
Power P
Puissance P
Potenza P

$$P = \frac{Md \cdot n \cdot \pi}{10^4 \cdot 3} = \frac{960 \cdot 142 \cdot \pi}{10^4 \cdot 3}$$

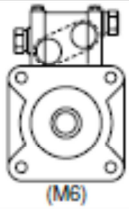
P = 14.3 kW

Crossover Relief Valve — Series TF / TG





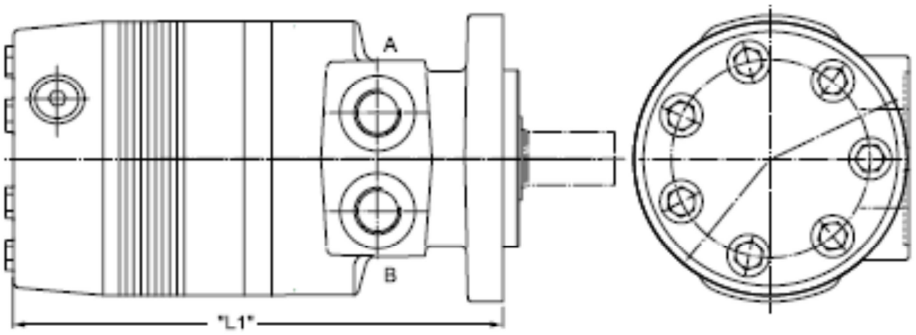
Bestellschlüssel / Ordering Code / Systéme de commande / Sistema di ordinazione

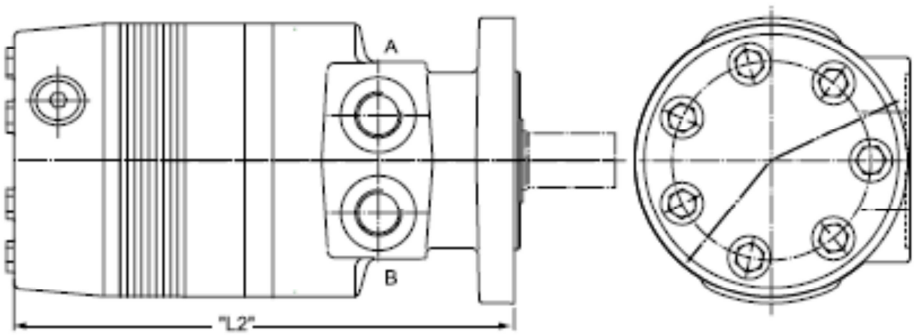
Opening pressure	Single valve		 (M8)	 (M6)	
	Order no. (M8)	Order no. (M6)	Option code	Option code	Length "L"
100 bar	410017-100	410018-100	HAAP	HAAF	158 mm
140 bar	410017-140	410018-140	HAAU	HAAH	158 mm
170 bar	410017-170	410018-170	HAAX	HAAK	158 mm
200 bar	410017-200	410018-200	HABA	HAAM	158 mm

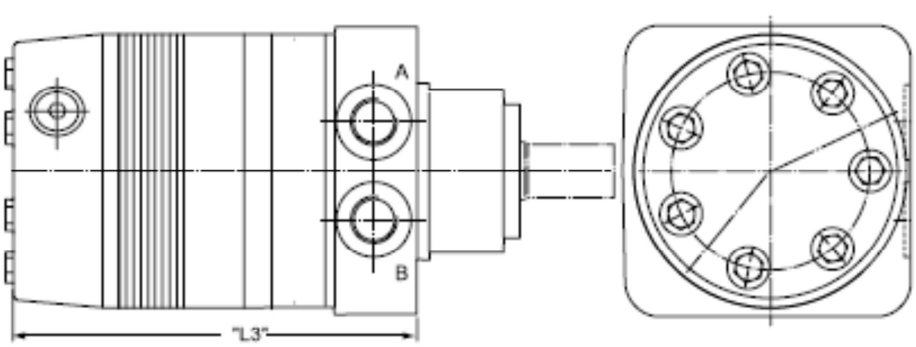
Zubehör / Fixtures / Fournitures / Part. di fissaggio

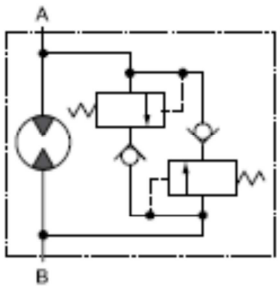
4 x M8 (M6) x 75mm ; 2 x O-Ring

Crossover Relief Valve — Series TF / TG / TH

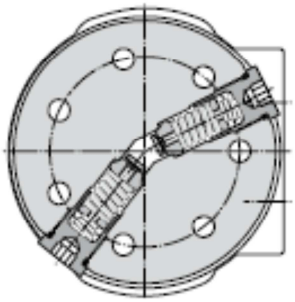








Ventilkurve auf Anfrage
Valve curve available on request
La courbe caractéristique de la vanne est disponible sur demande
Curva della valvola disponibile su richiesta



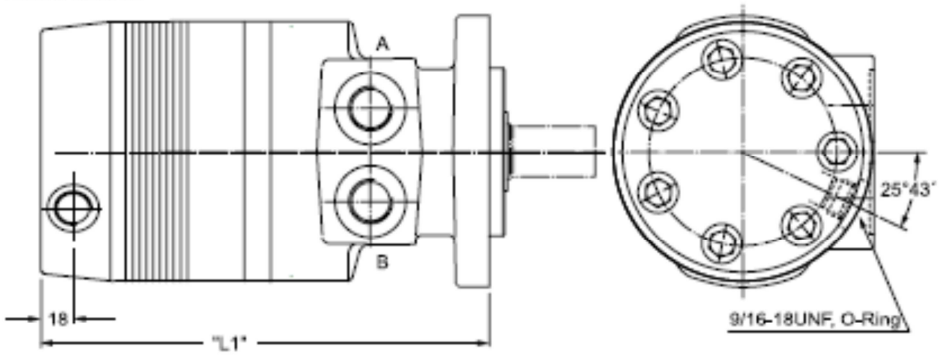
Motor Series	"L1" mm	"L2" mm	"L3" mm
TF80	213.5	218.5	173.2
TF100	213.5	218.5	173.2
TF130	216.5	221.5	176.3
TF140	218.3	223.3	178.1
TG140	218.3	223.3	178.1
TH140		243.6	201.2
TF170	221.3	226.3	181.1
TG170	221.6	226.6	180.4
TH170		246.9	204.3
TF195	224.6	229.6	184.4
TG195	224.6	229.6	184.4
TH195		250.0	207.6
TF240	229.2	234.2	189.0
TG240	229.2	234.2	189.0
TH240		254.8	212.2
TF280	234.0	239.0	193.8
TG280	234.0	239.0	193.8
TH280		259.6	217.0
TG330	240.4	245.4	200.2
TH330		266.0	223.3
TF365	243.7	248.7	203.5
TF405	247.7	252.7	207.5
TG405	247.7	252.7	207.5
TH405		275.3	230.7
TF475	256.4	261.4	216.2
TG475	256.4	261.4	216.2
TH475		281.7	239.3
TG530	262.7	267.7	222.5
TH530		288.1	245.7
TG620	272.1	277.1	231.9
TH620		297.8	255.1
TG790	291.2	296.2	251.0
TH790		316.8	274.1
TG960	310.2	315.2	270.0
TH960		335.9	293.2

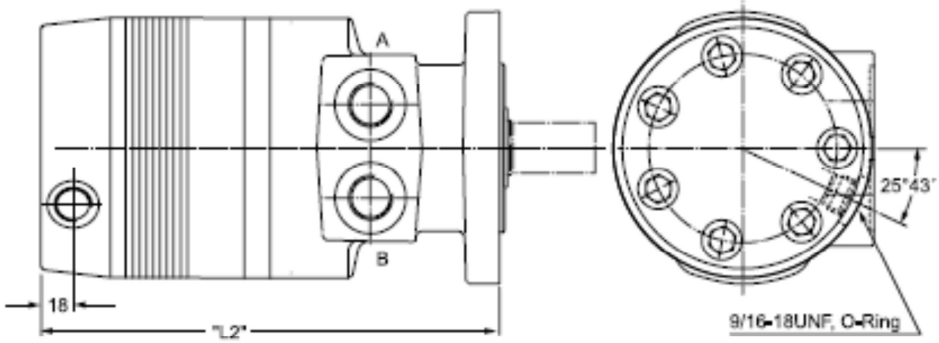
Bestellschlüssel / Ordering Code / Systéme de commande / Sistema di ordinazione

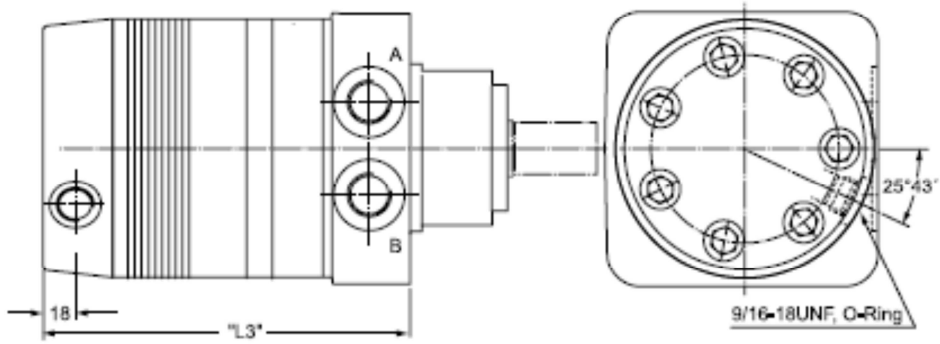
Option code	Opening pressure
BBBM	70 bar
BBBJ	100 bar
BBBN	140 bar
BBCG	170 bar
BBBF	200 bar

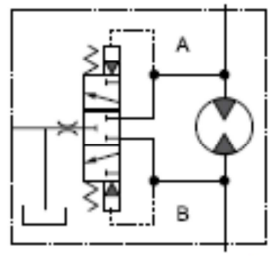
Hot Oil Shuttle Valve — Series TF / TG

Code AAFX









Q=3.5 l p=8 bar ϑ=39 mm²/s

Spülventil für geschlossene Systeme zur Rückführung einer definierten Menge des Niederdrucköls in den Tank zur Abkühlung innerhalb desselben Kreislaufs.

Hot oil shuttle valve allows for diverting of low pressure oil in closed loop applications to be returned to tank, cooler or filter for cooling in the same circuit.

Valve de rincage pour systèmes fermés pour le retour d`un volume déter-miné de fluide basse pression vers le réservoir, un refroidisseur ou un filtre de réfrigération, dans le même circuit.

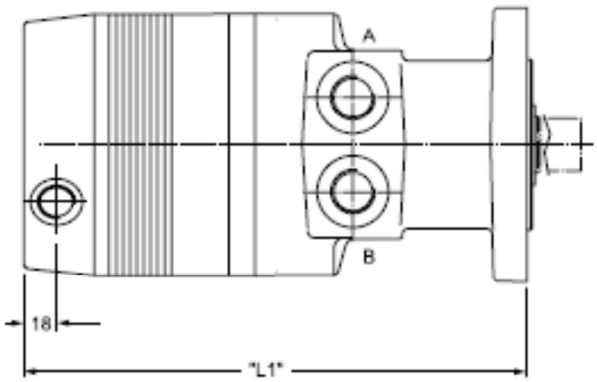
Una valvola selettice permette di deviare olio a bassa pressione direttamente al serbatoio o allo scambiatore di calore consentendo, nelle applicazioni a circuito chiuso, un miglior raffreddamento dell`olio.

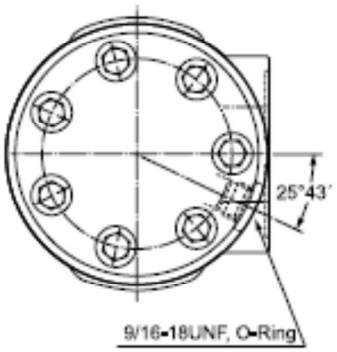
Gewicht / Weight		TG140	TG170	TG195	TG240	TG280	TG335	TG405	TG475	TG530	TG625	TG785	TG960
Poids /	Peso [kg]	16.0	16.3	16.5	16.9	17.3	17.7	18.3	19.0	19.7	20.4	22.0	23.7
Code AAFX	"L1" [mm]	210.5	213.8	216.8	221.4	226.2	232.6	239.9	248.6	254.9	264.3	283.4	302.4
Code AAFX	"L2" [mm]	215.5	218.8	221.8	226.4	231.2	237.6	244.9	253.6	259.9	269.3	288.4	307.4
Code AAFX	"L3" [mm]	170.3	173.6	176.6	181.2	186.0	192.4	199.7	208.4	214.7	224.1	243.2	262.2

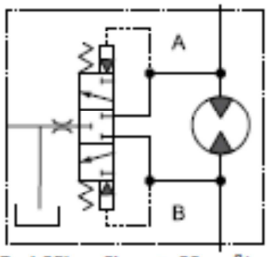
Gewicht / Weight		TF80	TF100	TF130	TF140	TF170	TF195	TF240	TF280	TF360	TF405	TF475
Poids /	Peso [kg]	15.0	15.1	15.3	15.4	15.6	16.1	16.4	16.9	17.4	17.9	18.9
Code AAFX	"L1" [mm]	205.9	205.9	208.9	210.9	213.9	216.9	221.9	225.9	234.9	239.9	248.9
Code AAFX	"L2" [mm]	210.9	210.9	213.9	215.9	218.9	221.9	226.9	231.9	239.9	244.9	253.9
Code AAFX	"L3" [mm]	165.9	165.9	168.9	170.9	173.9	176.9	181.9	186.9	194.9	199.9	208.9

Hot Oil Shuttle Valve — Series TH

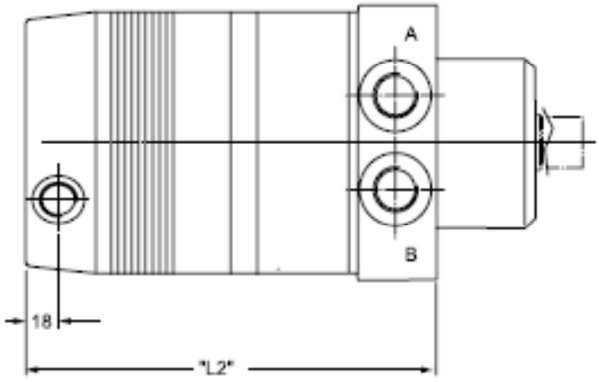
Code AAFX

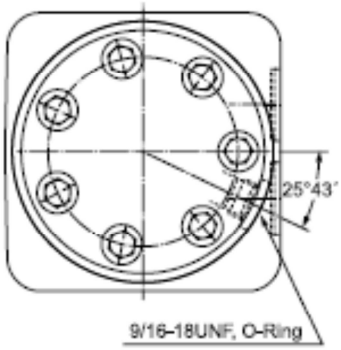






Q=4.35l p=8bar ϑ=39mm²/s





Spülventil für geschlossene Systeme zur Rückführung einer definierten Menge des Niederdrucköls in den Tank zur Abkühlung innerhalb desselben Kreislaufs.

Hot oil shuttle valve allows for diverting of low pressure oil in closed loop applications to be re-turned to tank, cooler or filter for cooling in the same circuit.

Valve de rincage pour systèmes fermés pour le retour d'un volume déter-miné de fluide basse pression vers le réservoir, un refroidisseur ou un filtre de réfrigération, dans le même circuit.

Una valvola selettice permette di deviare olio a bassa pressione direttamente al serbatoio o allo scambiatore di calore consentendo, nelle applicazioni a circuito chiuso, un miglior raffreddamento dell'olio.

Gewicht / Weight		TH140	TH170	TH195	TH240	TH280	TH335	TH405	TH475	TH530	TH620	TH785	TH960
Poids /	Peso [kg]	18.4	18.6	18.9	19.2	19.6	20.0	20.6	21.3	22.0	22.7	24.3	26.0
Code AAFX	"L1" [mm]	235.8	239.1	242.2	247.0	251.8	258.2	265.5	273.9	280.3	290.0	309.0	328.1
Code AAFX	"L2" [mm]	193.4	196.5	200.0	204.4	209.2	215.5	222.9	231.5	237.9	247.3	266.3	285.4

Speed Sensor

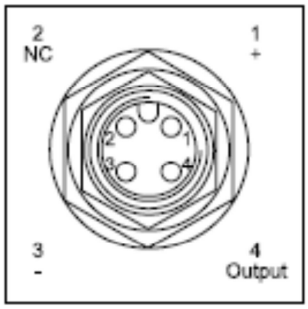
Series TE-TJ / TF / TG

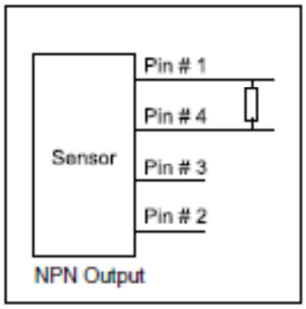
Dieser robuste, wetterfeste Drehzahlaufnehmer arbeitet nach dem Halleffekt. Es werden 30 Rechteckimpulse pro Abtriebswellenumdrehung erzeugt. Durch Erfassung der positiven und negativen Wellenflanken sind 60 Impulse pro Umdrehung möglich. Der Sensor führt zu keiner Leistungsbeschränkung des Motors. Die volle Radiallast-kapazität bleibt erhalten.

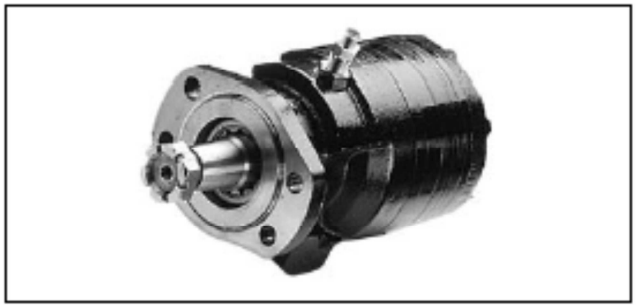
This rugged, weather resistant speed sensor is a Hall effect device. When externally powered, 30 square wave digital pulses per output shaft revolution are produced. By signal multiplication, 60 pulses per revolution can be obtained. The installation of this economical sensor does not affect the torque or side load capability of the motor into which it is installed.

Un capteur économique pour mesure de la vitesse. Ce capteur robuste et résistant aux intempéries est a effet Hall. Alimenté par une source externe, il fournit 30 impulsions carrées par tour. Par multiplication électroni-que, on obtient 60 impulsions par tour. Son montage ne modifie pas le couple ni la charge radiale du moteur qui le reçoit.

Sensore di velocità ad effetto Hall, estremamente robusto e resistente alle condizioni ambientali. Genera 30 impulsi al giro, con uscita digitale ad onda quadra. Il numero di impulsi può essere elettronicamente raddoppiato. L'utilizzo di questo sensore, non influisce sulle caratteri-stiche di coppia o di potenza del motore idraulico.







Versorgungsspannung Operating voltage range Courant d'alimentaion Tensione di alimentazione	4.5...24 V (DC)
Arbeitstemperatur Operating temperature Température Temperatura di funzionamento	-30°...100° C
Arbeitsfrequenz Operating frequency range Fréquence d'utilisation Frequenza di lavoro	0...10 KHZ
Erforderlicher Laststrom Sink current Courant depeau Corrente di alimentazione	0...20 mA (max.)
Anschluss Connection Raccordement Connessione elettrica	4 Pin (12mm) DIN Standard

Formel Pullup-Widerstand	(0.25 Watt, Tol. 5%)
Formula pull-up resistor value	(0.25 Watt, 5% tol.)
Formule valeur pull-up resistor	(0.25 Watt, tol. 5%)
Calcolo resistenza di carico	(0.25 Watt, toll. 5%)

Spannung/Voltage
Courant/Tensione 4.5...24 V
Laststrom/Sink current 0...20 mA
Courant/Corrente
= Widerstand / Resistor / Résistance / Resistenze k Ohm

Status: aus/State: off
Courant: off/Condizione: off
(95% +V)

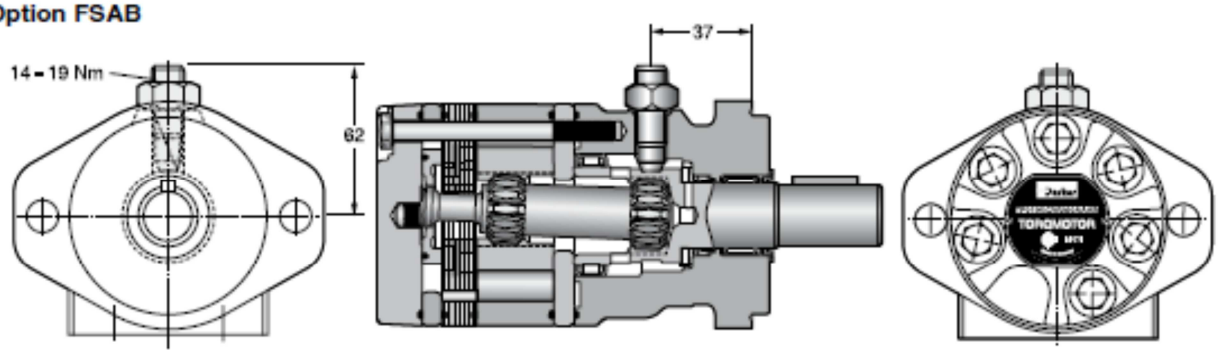
+ V

Status: ein/State: on
Courant: on/Condizione: on
(max. 0.4 V DC)

0 V

Speed Sensor — Series TE / TJ

Option FSAB



Der Sensor ist gegen Verpolung der Versorgungsspannung, jedoch nicht gegen Kurzschluss geschützt.

The sensor has reverse polarity protection but no short circuit protection.

Le capteur est protégé contre l'inversion de polarité de la tension d'alimentation, mais pas contre les courts circuits.

Il sensore è protetto contro l' inversione della polarità della tensione di alimentazione, ma non contro il corto circuito.

Ordering code

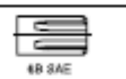
TE														F	S	A	B
Series	Schluckvolumen Displacement Cylindrée Cilindrata				Gehäuse Housing Carter Scatola motore	Anschluss Ports Plan de raccordement Connessioni	Welle Shaft Arbre Albero		Drehrichtung Direction of rotation Direction de rotation Direzione di rotazione	Option							

Code	cm^3/rev
0036	36
0045	41
0050	50
0065	66
0080	82
0100	98
0130	130
0165	163
0195	196
0230	228
0260	261
0295	293
0330	326
0365	370
0390	392

Code	Housing
C	

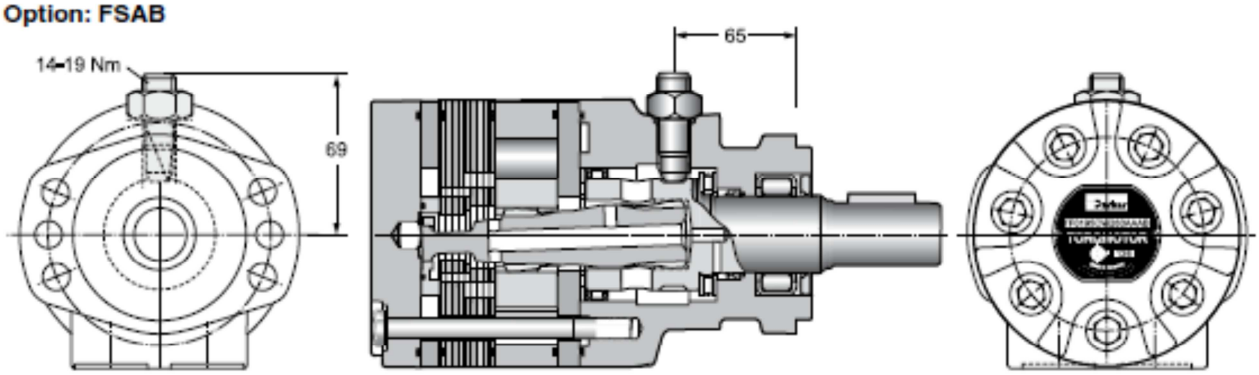
Code	Port
W	G 1/2
N	universal port M8x13
Y	rear port G 1/2 axial

Code	Direction
0	 Standard
1	

Code	Shaft
26	
10	
41	

Speed Sensor — Series TF / TG

Option: FSAB



Der Sensor ist gegen Verpolung der Versorgungsspannung, jedoch nicht gegen Kurzschluss geschützt.

The sensor has reverse polarity protection but no short circuit protection.

Le capteur est protégé contre l'inversion de polarite la tension d'alimentation, mais pas contre les courtcircuits.

Il sensore é protetto contro l'inversione della polarità della tensione di alimentazione, ma non contro corto circuito.

Ordering Code

												F	S	A	B

Serie / Series / Série / Serie

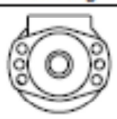
Code
TF
TG

Schluckvolumen / Displacement / Cylindrée / Cilindrata

Code TF	cm³/rev
0080	81
0100	100
0130	128
0140	141
0170	169
0195	195
0240	237
0280	280
0360	364
0405	405
0475	477

Code TG	cm³/rev
0140	140
0170	169
0195	195
0240	237
0280	280
0335	337
0405	405
0475	476
0530	529
0625	624
0785	786
0960	958

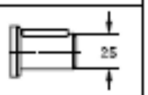
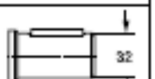
Gehäuse / Housing / Carter / Corpo motore

Code	Housing
E	

Anschluss / Ports / Plan de raccordement / Connessioni

Code	Port
W	G 1/2

Welle / Shaft / Arbre / Albero

Code	Shaft
26[1]	
08	
46	

[1] Nur für TF Motoren
Only possible for TF motors
Possible seulement avec TF moteur
Possible solo con motore TF

Drehrichtung / Direction of rotation / Direction de rotation / Direzione di rotazione

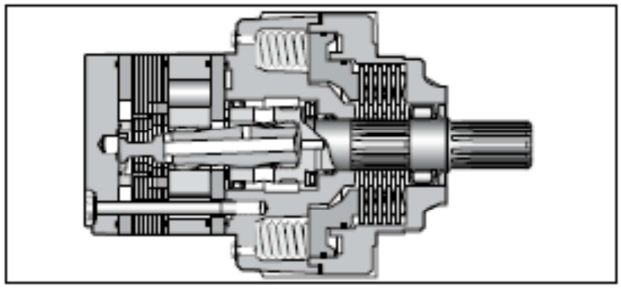
Code	Direction
0	 Standard
1	

Option

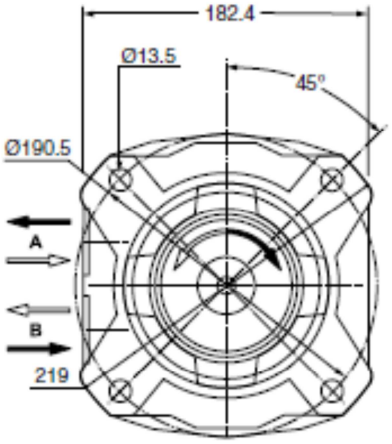
Integral Brake Motor — Series BG

Kenndaten / Performance / Puissance / Potenza

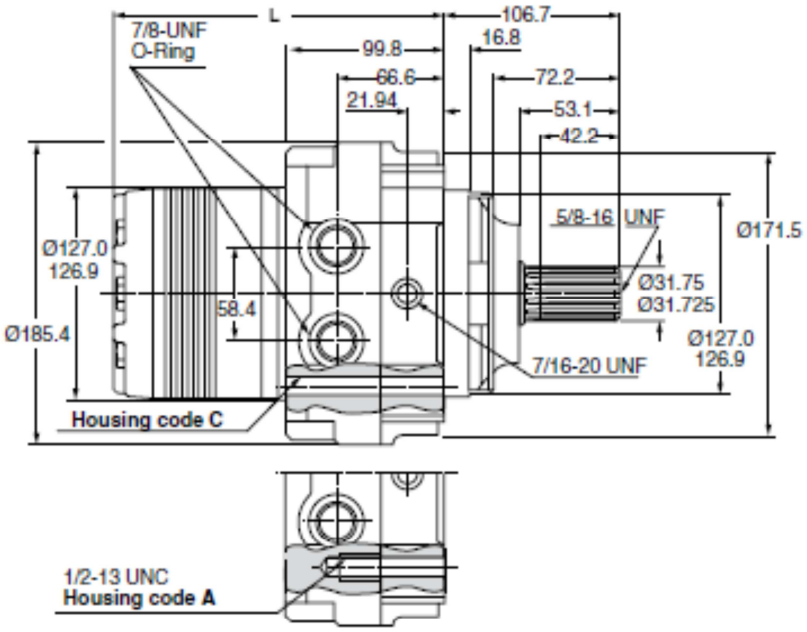
Drehmoment (Nasslauf)/Torque (wet operation)/Couple/Coppia statica	dyn. Ms Nm	1000
Luftüberdruck/Pressure rating/Pression de déblocage/Pressione sbloccaggio	p min. bar	19-21
	p max. bar	210
Drehzahl/Speed/ Vitesse de rotation/Velocità di rotazione	n max. U/min n max. rev/min n max tr/min n maxi giri/min	710
Hubvolumen/Working stroke Cylindrée/Cilindrata	cm^3 max.	22.5



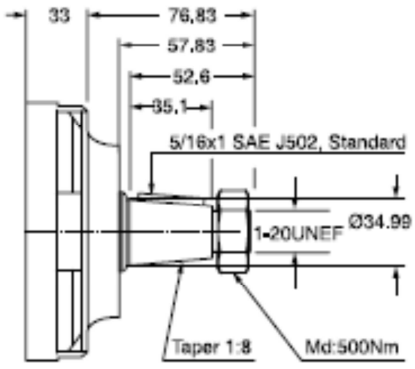
Gewicht / Weight		BG140	BG170	BG195	BG240	BG280	BG335	BG405	BG475	BG530	BG625	BG785	BG960
Poids / Peso	kg	27.3	27.5	27.8	28.1	28.5	28.9	29.5	30.2	30.9	31.7	33.2	34.9
Code A+C	"L" mm	192.3	195.3	198.6	203.2	208.0	214.4	221.7	230.4	236.7	246.1	265.2	284.2



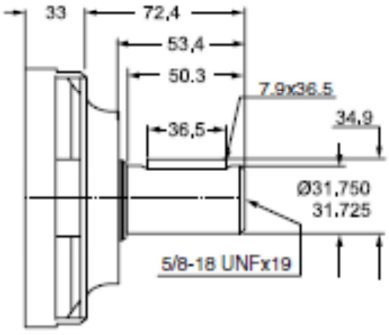
Shaft Code 05



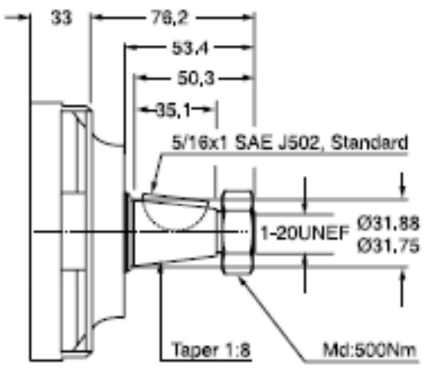
Shaft Code 19



Shaft Code 03



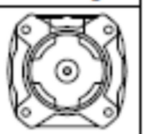
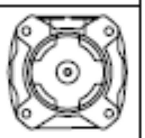
Shaft Code 08



Integral Brake Motor Series BG

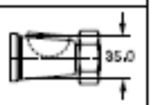
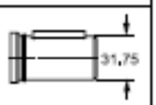
BG	☐☐☐☐	☐	☐	☐☐	☐	A A A B
Serie Series Série Serie	Schluckvolumen Displacement Cylindrée Cilindrata	Gehäuse Housing Carter Corpo motore	Anschluss Ports Plan de raccorde-ment Connessioni	Welle Shaft Arbre Albero	Drehrichtung Direction of rotation Direction de rotation Direzione di rotazione	Option

Code	cm^3/rev
0140	140
0170	169
0195	195
0240	237
0280	280
0335	337
0405	405
0475	476
0530	529
0625	624
0785	786
0960	958

Code	Housing
A	
C	

Code	Port
S	7/8-14 SAE O-Ring

Code	Direction
0	 Standard
1	

Code	Shaft
05	 Pitch 12/24
19	
03	
08