

Code: FSAA* or FSAB  

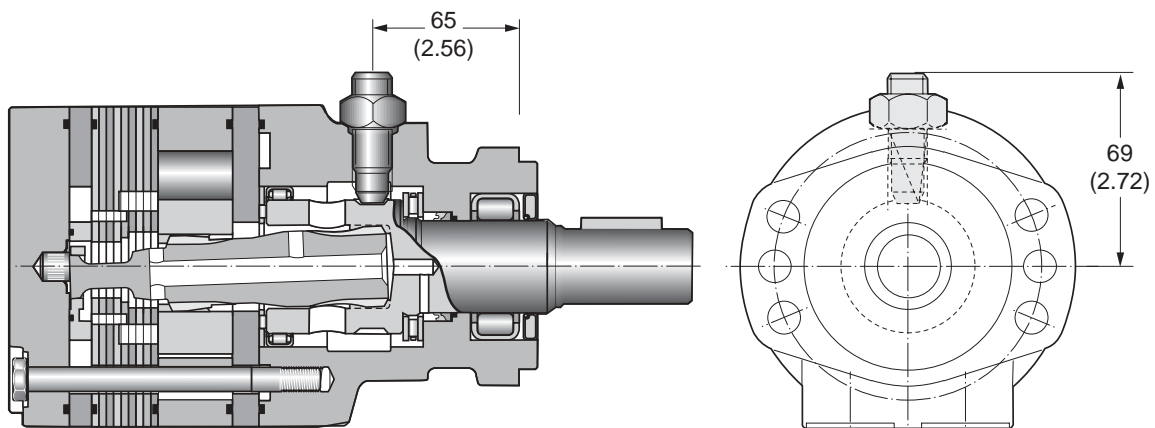
An Economical Sensor for Speed Readout

This rugged, weather resistant design is ideal for industrial and mobile applications. Applications include salt/sand/fertilizer spreader drives, conveyer drives and injection molder compression drives. The sensor is a hall-effect type, which when externally powered outputs 30 square wave digital pulses per coupling shaft revolution. The connector is a user friendly universally available 4 pin polarized M12 connector allowing for simplified field service. The integrated design does not effect the side load capacity or performance of the torque motor.

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 Radiallastkapazität bleibt erhalten.

Un capteur economique pour mesure de la vitesse. Ce capteur robuste et resistant aux intemperies est a effet Hall. Alimente par une source externe, il fournit 30 ondes digitales carrees par tour. Par multiplication lelectronique on obtient 60 pulsations par tour. Son montage ne modifie pas le couple ni la charge radiale du moteur qui le recoit.

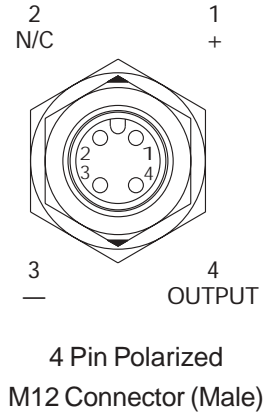
Este es un diseño de construcción reforzada, apto para uso a la intemperie e ideal para uso industrial y en equipos móviles. Entre sus aplicaciones, se puede mencionar esparcidores de sal, arena o fertilizantes, unidades motoras de transportadores y unidades motoras de compresión para moldeo a inyección. El sensor es del tipo de medio efecto, que al ser excitado externamente, genera 30 pulsos digitales de onda cuadrada por cada revolución del eje del acoplamiento. Utiliza un simple conector M12 polarizado tetrapolar, que es de uso común y facilita el mantenimiento en el lugar de instalación. El diseño integrado no afecta la capacidad de carga lateral ni la potencia del motor de torque.



- * Option code FSAA is with a single black coat of paint.
- * Code FSAA: Motor schwarz grundiert
- * Le code d'option montré correspond à une seule couche de peinture noire.
- * El código de la opción mostrado es con una sola capa de pintura negra.

English equivalents for metric specifications are shown in ().

Operating voltage range Versorgungsspannung Gamme de tension de service Gama de voltaje de alimentacion	4.5...24 VDC
Operating temperature Arbeitstemperatur Temperature de service Temperatura de servicio	-20° to 220° F -29°...104° C
Operating frequency range Arbeitsfrequenz Gamme de frequences de service Gama de frecuencia de servicio	0...10 KHZ
Max sink current Erforderlicher Laststrom Courant d'affaissement maxi Corriente maxima de alimentacion	0 ... 20 mA (max.)
Connection Anschluß Branchement Conexion	4 Pin Polarized (12mm)
Sensor output Sensorausgang Sortie du détecteur Salida del sensor	30 Pulses per revolution which can be doubled electronically 30 impulsions par revolution pouvant etre doublees electroniquement 30 pulsos por revolucion, que pueden duplicarse electronicamente
Output is NPN Ausgang is NPN La sortie est NPN La salida es NPN	Open Collector Collecteur ouvert Colector abierto

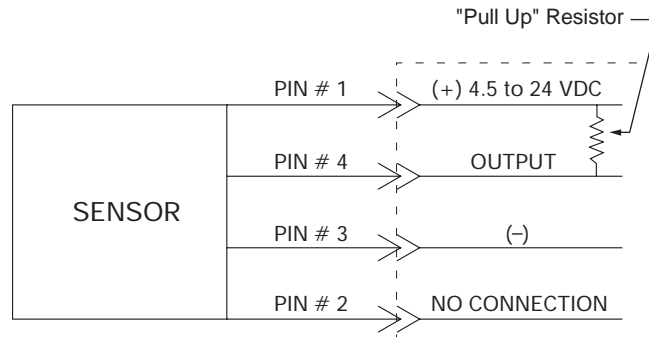


Cable and "Pull Up" Resistor are *not* supplied by factory.

Zubehör wie z.B. Kabel gehören nicht zum Lieferumfang.

Le câble et la résistance "Pull Up" ne sont pas fournis par l'usine.

El cable y la resistencia de arranque no se suministran originalmente de fábrica.



Pull-up Resistor Value Formula
Formel zur Ermittlung des Pull up-Widerstandes
Formule de la valeur de resistance "Pull-up"
Calculo de la resisancia de carga

(0.25 Watt, 5% de tol.)
 (0.25 Watt, Tol. 5%)
 (0.25 Watt 5% Tol.)
 (0.25 Watt, toll. 5%)

Voltage / Spannung
 Curant d'affaissement / Voltaje 4.5...24 VDC
 Sink Current / Laststrom 0...20 mA
 Resistance / Corriente de ali mentacion

Resistor
 Widerstand
 Resistance
 Resistancia (k Ohm)

Status: Offstate / aus
 Etat: Arret / Estado Inactivo
 (95% +V)

+ V

Status: Onstate / ein
 Etat: Marche / Estado Activo
 (max. 0.4 VDC)

0 V

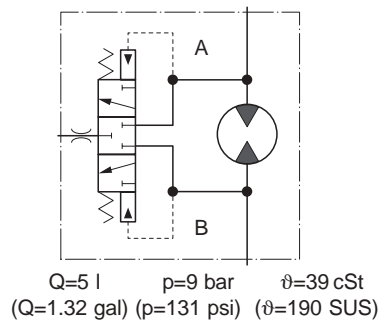
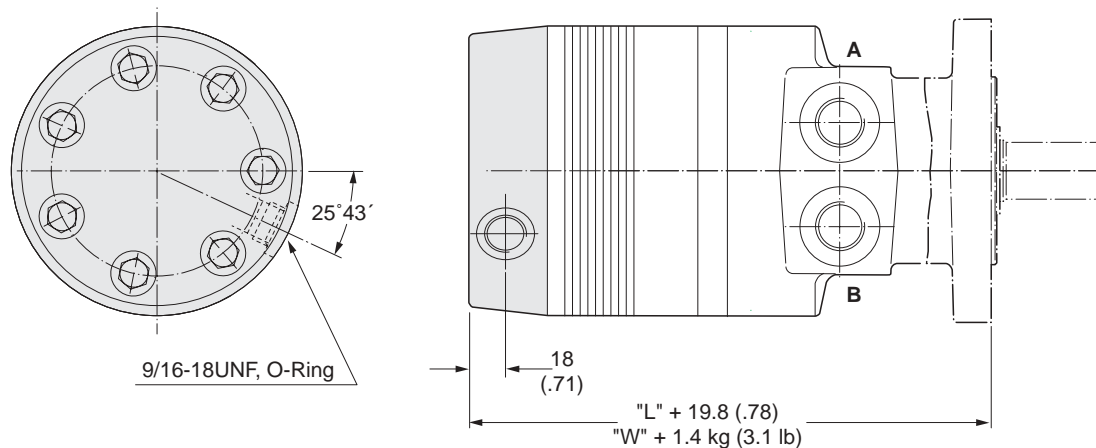
Code: AAFX or AAAT* 

A Hot Oil Shuttle is used to continuously remove a portion of the fluid in a closed loop transmission or other closed loop system. At 125 PSI pressure differential between the motor return port and the shuttle outlet, 1.5 GPM* will exit the circuit to cool, filter and return to the reservoir. The constant loop replenishment helps to keep heat and contamination from building up in the circuit. This option is not available with rear ports or integral cross over relief.

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

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

Un transferidor de aceite caliente actúa permanentemente para extraer una parte del fluido en una transmisión de circuito cerrado u otro sistema de circuito cerrado. Entre la entrada de retorno del motor y la salida del transferidor hay una diferencia de presión de 125 psi (libras/pulg.²), y a esta presión salen 1,5 galones por minuto del circuito para enfriarse, filtrarse y volver al depósito de fluido. El reacondicionamiento permanente de parte del fluido evita la contaminación del mismo y el incremento de temperatura en el circuito.



English equivalents for metric specifications are shown in ().

Standard Length & Weights for TF Series on Pages 97 - 101, TG Series on Pages 143 - 147 and TH Series on Pages 193 - 194.

Längen/Gewichte TF Serie Seiten 97-101, TG Serie Seiten 143-147, TH Serie Seiten 193-194.

Longueurs et poids courants pour la série TF, voir les pages 97-101, et la série TG, voir les pages 143-147, et la série TH, voir les pages 193-194.

Los valores estándar de longitud y peso de la Serie TF se puede ver en las Páginas 97 y 101, y de la Serie TG en las Páginas 143 a 147, y de la Serie TH en las Páginas 193 a 194.

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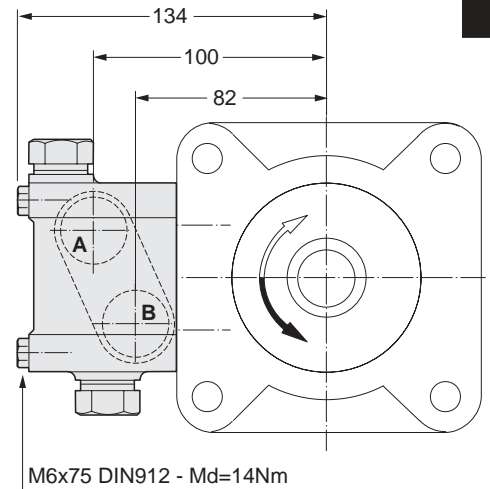
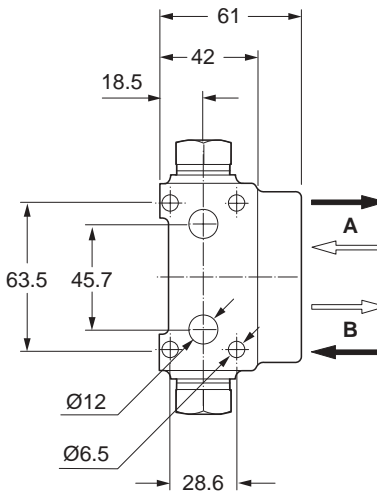
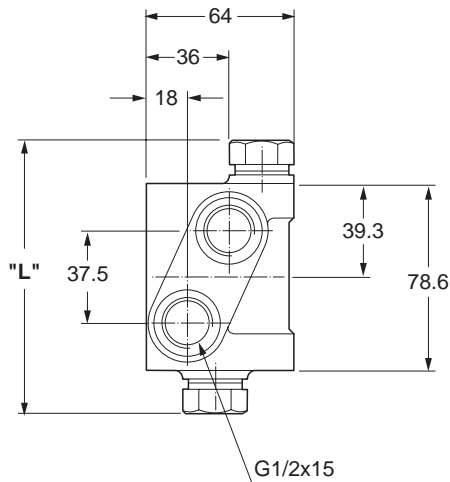
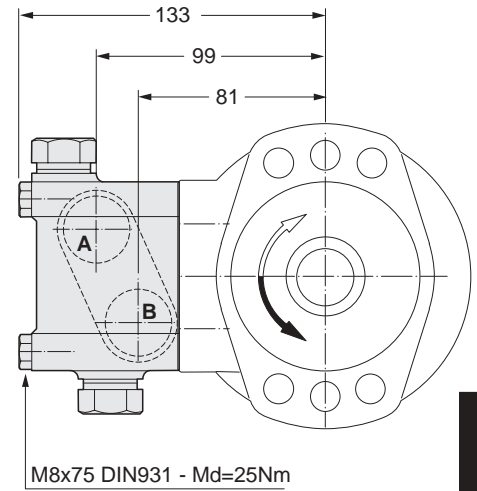
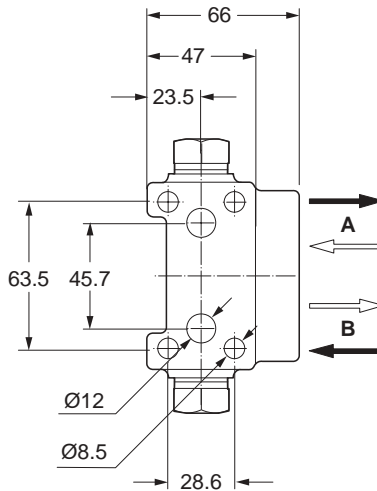
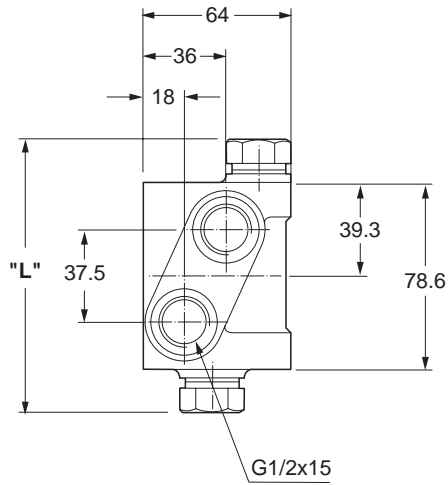
* Code AAAT: Motor schwarz grundiert

* Le code d'option montré correspond à une seule couche de peinture noire.

* El código de la opción mostrado es con una sola capa de pintura negra.

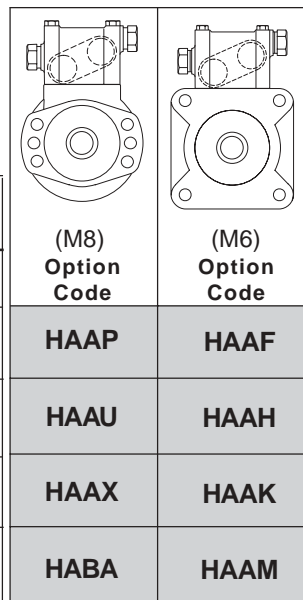
Code: HAAP, HAAU, HAAX, HABA, HAAF, HAAH, HAAK or HAAM **EU**

External relief valve / Schockventil extern / Soupape de sécurité externe / Regolatrice di pressione esterna

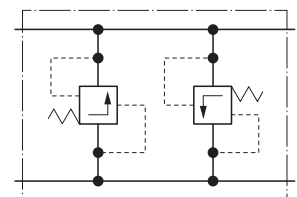


Bestellschlüssel / Ordering system /
Système de Commande / Información para
pedidos

Öffnungsdruck Opening pressure Tarage / Presion de apertura	Ventil, einzel single valve				Maß "L" Length "L"
	Bestell-Nr. Order-No	Bestell-Nr. Order-No	(M8) Option Code	(M6) Option Code	
100 bar	410017-100	410018-100	HAAP	HAAF	110 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
Accessorios
4 x M8 x 75mm
2 x O-Ring



English equivalents for metric specifications are not shown.

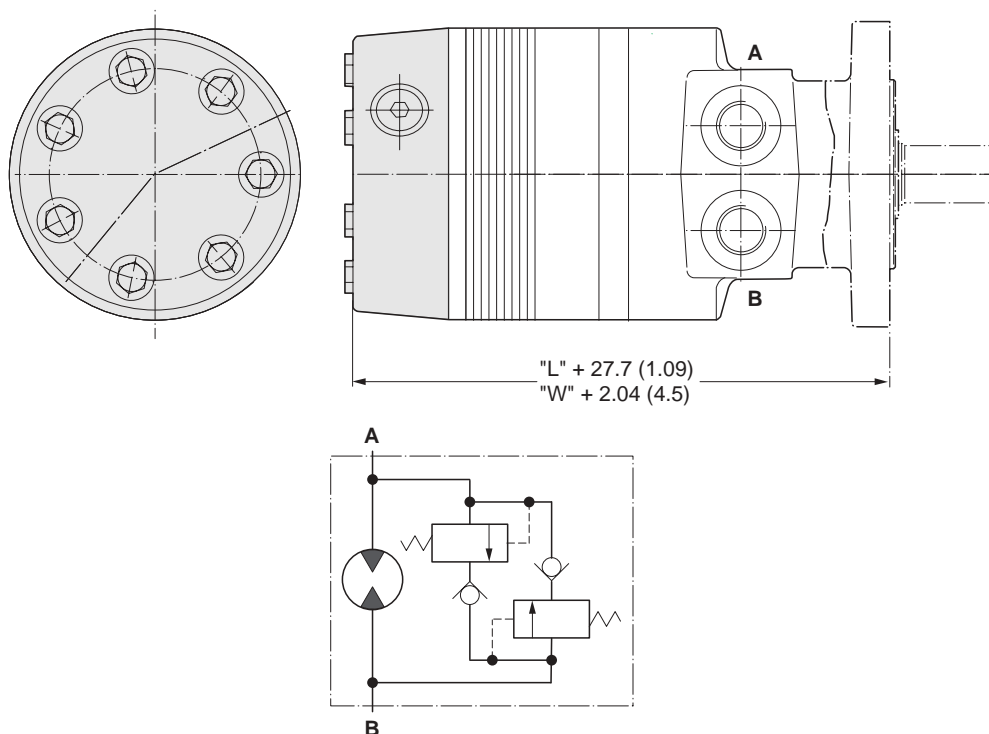
Code: BBBA*, BBBB*, BBBC*, BBBD* or BBBG* EU US

This integrated internal relief valve is used for fixed pressure settings.

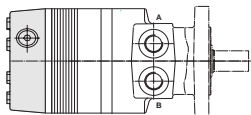
Internes Schockventil

La soupape de sécurité interne utilise pour des valeurs de pression fixes.

La valvula interna de alivio se utiliza para cabliraciones fijas de presion.



Bestellschlüssel / Système de Commande / Ordering system / Información para pedidos

Option		Pressure bar (psi)
BBBA	 <p>Öffnungsdruck Opening pressure Tarage Presion de apertura</p>	69 (1000)
BBBB		138 (2000)
BBBC		207 (3000)
BBBD		276 (4000)
BBBG		103 (1500)

Standard Length & Weights for TF Series on Pages 97 - 101, TG Series on Pages 143 - 147 and TH Series on Pages 193 - 194.

Längen/Gewichte TF Serie Seiten 97-101, TG Serie Seiten 143-147, TH Serie Seiten 193-194.

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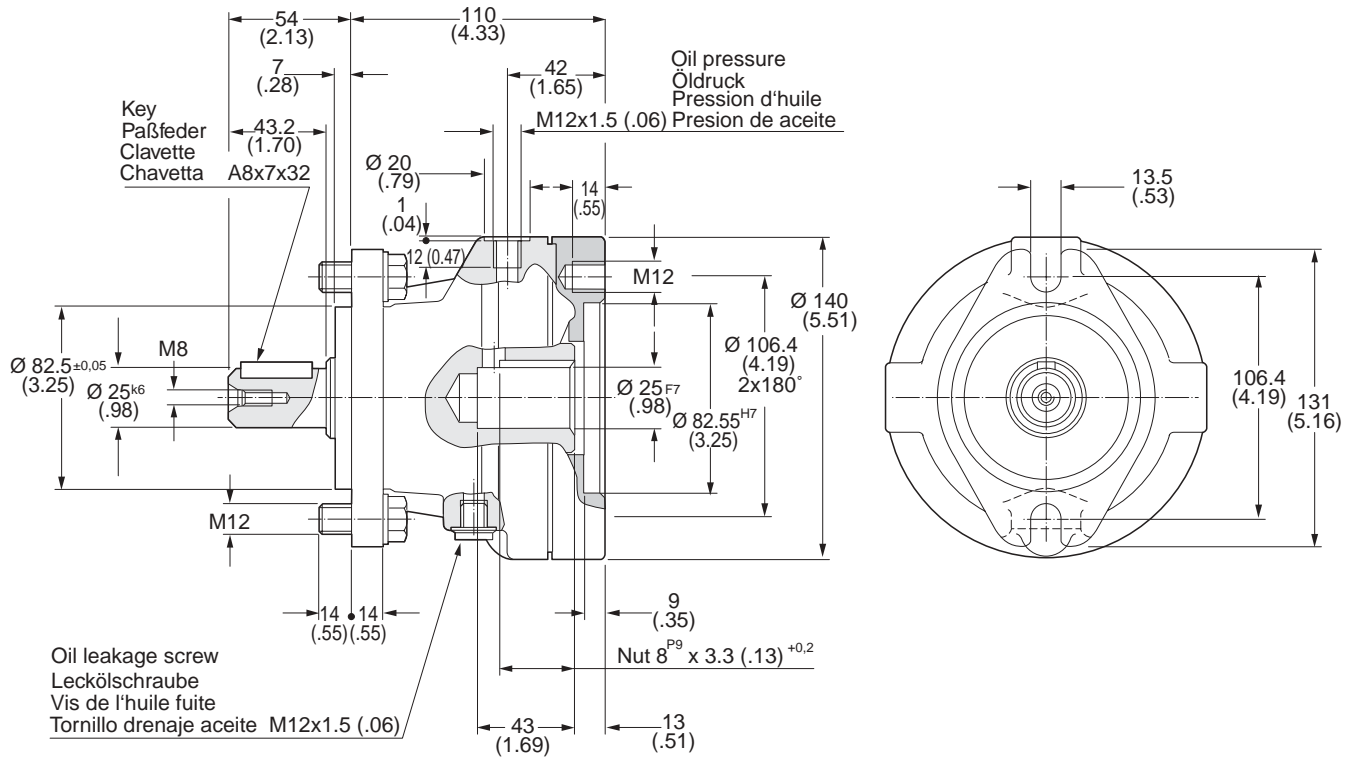
* Motor schwarz grundiert

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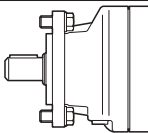
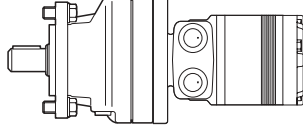
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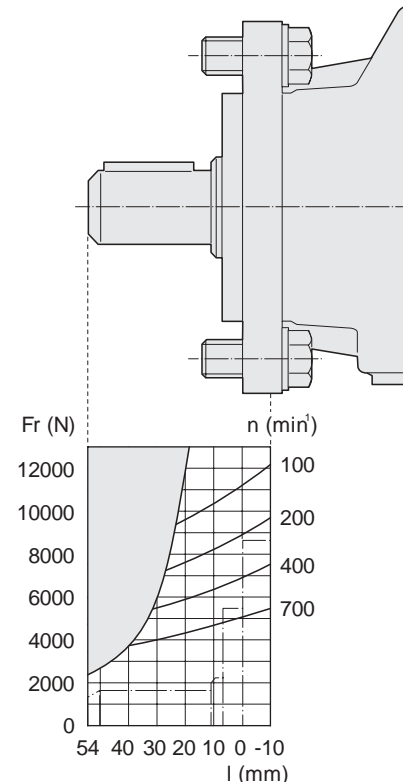
English equivalents for metric specifications are shown in ().

Code JAAG, JAAD or JAAB EU



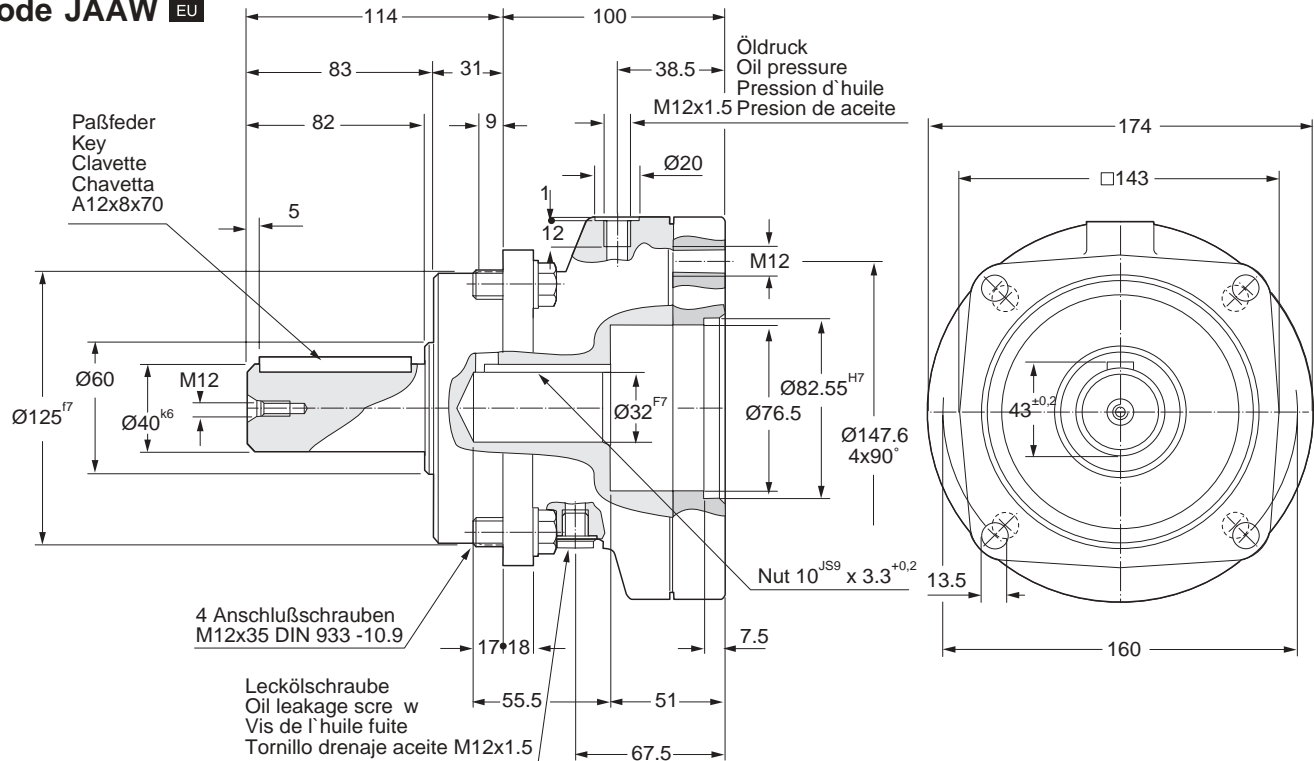
Ordering system / Bestellschlüssel
Sistema di ordinazione / Informacion para pedidos

Code		Single Brake Bremse einzeln Frein Freno	49 01 11	49 01 12	49 01 13
Code		Motor-Brake combination Motor-Bremse Combinaison Moteur Combinacion motor/freno	JAAG	JAAD	JAAB
Torque (dry operation) / Drehmoment (Trockenlauf) Couple / Torque (en seco)	stat. Mü Nm (lb in) dyn. Ms Nm (lb in)	580 (5130) 450 (3980)	400 (3540) 320 (2830)	270 (2390) 215 (1900)	
Torque (wet operation) / Drehmoment (Naßlauf) Couple / Torque (con fluido)	stat. Mü Nm (lb in) dyn. Ms Nm (lb in)	420 (3720) 310 (2740)	290 (2560) 225 (1990)	200 (1770) 150 (1320)	
Pressure rating / Lüftüberdruck	p min. bar (psi)	22 (320)	16 (230)	11 (160)	
Pression de déblocage / Presion nominal desbloqueo	p max. bar (psi)	320 (4640)			
Speed / Drehzahl Velocità di rotazione / Vitesse de rotation	n max. rev/min n max. U/min n max tr/min n maxi giri/min	5000			
Working Stroke / Hubvolumen Volume m egendré / Volumen de desplazamiento	cm ³ (in ³) min. cm ³ (in ³) max.	5.0 (0.30) 10.0 (0.61)			
Mass Moment of inertia Massenträgheitsmoment Moment m d'inertie de masse Momento de inercia de masa	kgm ²	0.00065			
Weight / Gewicht / Poids / Peso	kg (lb)	8 (17.6)			

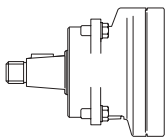
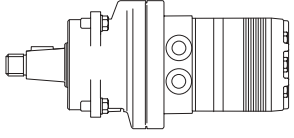


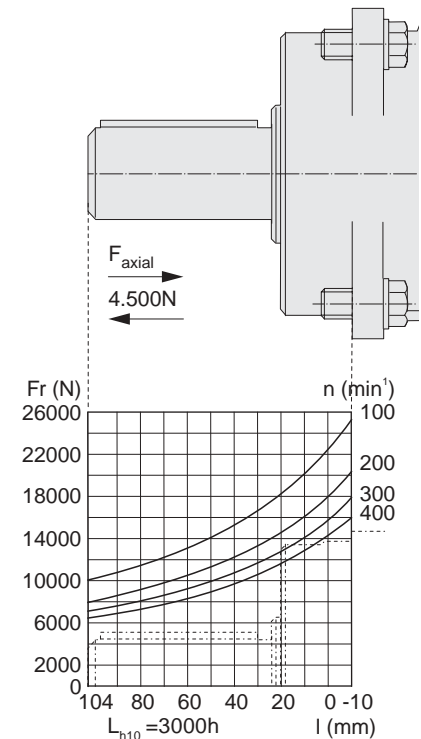
Fixtures	
Zubehör	2 x M12x50
Fournitures	DIN 933
Part. di fissaggio	

Code JAAW EU



**Bestellschlüssel / Système de Commande
Ordering system / Información para pedidos**

Code		Bremse einzeln single Brake Frein Freno	49 01 17
Code		Motor-Bremse Motor-Brake combination Combinaison Moteur Combinacion motor/freno	JAAW
Drehmoment (Trockenlauf) / Torque (dry operation) Couple / Torque (en seco)	stat. Mü Nm (lb in) dyn. Ms Nm (lb in)	1250 (11070) 980 (8680)	
Drehmoment (Naßlauf) / Torque (wet operation) Couple / Torque (con fluido)	stat. Mü Nm (lb in) dyn. Ms Nm (lb in)	900 (7970) 680 (6020)	
Lüftüberdruck / Pressure rating	p min. bar (psi)	24 (350)	
Pression de déblocage / Presion nominal desbloqueo	p max. bar (psi)	320 (4640)	
Drehzahl / Speed Velocità di rotazione / Velocidad	n max. U/min n max. rev/min n max tr/min n maxi giri/min	4000	
Hubvolumen / Working Stroke Volume m egendré / Volumen de desplazamiato	cm ³ (in ³) min. cm ³ (in ³) max.	11 (0.67) 26 (1.58)	
Massenträgheitsmoment Mass Moment of inertia Moment m d'inertie de masse Moment de inercia de masa	kgm ²	0.00282	
Gewicht / Weight / Poids / Peso	kg (lb)	15.3 (33.7)	



Zubehör	
Fixtures	4 x M12x50
Fournitures	DIN 933
Accesorios	

Code: AAAA EU US

Black Paint — Single coat of black paint

Code: AAAB EU US

Unless specified otherwise, motors are shipped unpainted and coated with a rust inhibitor.

Code: AAAC US

Double Paint — Double coat of black paint for increased corrosion resistance

Code AAAF* or AABP EU US

Castle Nut — All motors ordered with Tapered shafts are equipped with patch locking nuts. If desired, a castle nut may be specified.

Code: AAAJ* or AAFG EU US

Vespel™ Commutator Seal — Under conditions of high temperature or low lubricity, it is suggested that a vespel commutator seal be used..

Code: AAAG* or AAAH EU US

Fluorocarbon — is available under various registered trademarks, including **VITON™** (a registered trademark of DuPont), **FLUOREL™** (a registered trademark of 3M) or **FPM™** (a registered trademark of DuPont).

Code: AABJ* or AABK EU US

Free Running Rotorset ó The “free running rotorset” is a specially dimensioned rotorset that allows for smoother operation at low flows and low pressure. Volumetric efficiency can be affected.

Code: AANM*

Seal Saver ó Seal saver is a metal disc that presses onto the motor shaft, covering the dirt and water (D&W) seal. It's purpose is to aid in preventing external contamination from damaging the D&W seal.

Code: AAAA

Schwarz lackiert

Code: AAAB

Unlackiert

Motor ist korrosionsgesch,tzt

Code: AAAC

Zweischichtlackierung schwarz

Code AAAF* or AABP

Kronenmutter

Selbstsichernde Mutter wird ersetzt durch Kronenmutter

Code: AAAJ* or AAFG

Vespel™ / Kommutator Dichtung

Für Anwendungen im höheren Temperaturbereich oder nicht ausreichender Schmierung.

Code: AAAG* or AAAH

Fluorocarbon Dichtungen

Für Anwendungen im höheren/niedrigeren Temperaturbereich oder speziellen Flüssigkeiten wird der Einsatz von Fluorocarbon Dichtungen empfohlen. Fluorocarbon ist bekannt unter verschiedenen eingetragenen Warenzeichen

VITON™ - DuPont, Fluorel™ - 3M, FPM™ - DuPont

Code: AABJ* or AABK

Leichtläufer Rotorsatz

Anlaufdruck < 5 bar

Code: AANM*

Versiegelungsschutz ó Der Versiegelungsschutz besteht aus einer Metallscheibe, die gegen die Antriebswelle drückt und damit Schmutz- und Wasserdichtung (D&W-Dichtung) abdeckt. Hierdurch soll einer Beschädigung der D&W-Dichtung auf Grund externer Verunreinigungen vorgebeugt werden.

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* Motor schwarz grundiert

Availability				Code		Description		
TF/DF	TG/DG	TH	BG/BH	Painted	Unpainted			
	US		US	AAAC	-	Double Paint / Zweischichten – Lackierung		
EU	US	EU	US	AAAF	AABP	Castle Nut / Kronenmutter		
EU	US	EU	US	AAAG	AAAH	Fluorocarbon Seals / Fluorocarbon Dichtungen		
EU	US	EU	US	AAAJ	AAFG	Vespe TM Commutator Seal / Vespe TM Kommutator Dichtung		
EU	US	EU	US	AABJ*	AABK*	Free Running Rotorset / Leichtläufer-Rotorsatz		
EU	US	EU	US	AAAT**	AAFX**	Hot Oil Shuttle (11:00) / Spülventil		
EU	US	EU	US	AANM	-	Seal saver for 1.25 taper shaft only		
EU	US	EU	US					
			EU	US	AANB	-	678 Nm (6000 in-lb) Holding Capacity	
			EU	US	AAMN	AANH	1808 Nm (16000 in-lb) Holding Capacity	
			EU	US	FSAA	FSAB	Speed Sensor / Drehzahl-Sensor	
EU	US	EU	US	EU	US	BBBA**	BBBM**	69 Bar (1000 PSI) Internal Bidirectional Relief / Internes Schockventil
EU	US	EU	US	EU	US	BBBG**	BBBJ**	103 Bar (1500 PSI) Internal Bidirectional Relief / Internes Schockventil
EU	US	EU	US			BBBB**	BBBN**	138 Bar (2000 PSI) Internal Bidirectional Relief / Internes Schockventil
EU	US	EU	US	EU	US	BBBC**	BBBF**	207 Bar (3000 PSI) Internal Bidirectional Relief / Internes Schockventil
EU	US	EU	US	EU	US	BBBD**	BBBW**	276 Bar (4000 PSI) Internal Bidirectional Relief / Internes Schockventil
	EU	EU				-	HAAP	100 Bar (1450 PSI) Crossover Relief Valve / Schockventil
	EU	EU				-	HAAU	140 Bar (2031 PSI) Crossover Relief Valve / Schockventil
	EU	EU				-	HAAX	170 Bar (2466 PSI) Crossover Relief Valve / Schockventil
EU	EU					-	JAAG	Multiple Disc Brake / Lamellenbremse, 22 Bar Release, 25 mm Shaft
EU	EU					-	JAAD	Multiple Disc Brake / Lamellenbremse, 16 Bar Release, 25 mm Shaft
EU	EU					-	JAAB	Multiple Disc Brake / Lamellenbremse, 11 Bar Release, 25 mm Shaft
EU	EU					-	JAAW	Multiple Disc Brake / Lamellenbremse, 24 Bar Release, 45mm Tapered Shaft
EU	EU					-	JAAT	Multiple Disc Brake / Lamellenbremse, 24 Bar Release, 40mm Shaft
Consult factory for other positions and combinations.								
* Not applicable to TF, TG or TH 0625, 0785 or 0960 displacement codes.								
** Not available with A, B, E, Y, X or L porting. If specifying internal bidirectional reliefs, relief settings cannot exceed intermittent pressure rating of motor.								