

*TECHNICAL DATA SHEETS*  
*and*  
*RECOMMENDATIONS*

**ABER**

Manufacturing Hydraulic Excellence since 1972

[www.ABER.pt](http://www.ABER.pt)



## CONSTANT DRIVE 10 BOLT MOUNT POWER TAKE OFF RECOMMENDATIONS BEFORE START-UP



Torque Table			
Size (mm - inch)	M8 3/8"	M10 7/16"	M12 1/2"
Screws and nuts Torque	25 N.m 18 lbf.ft	60 N.m 45 lbf.ft	80 N.m 59 lbf.ft
Studs Torque	10 N.m 7 lbf.ft	20 N.m 15 lbf.ft	30 N.m 22 lbf.ft

### Installation of a constant drive 10 bolt mount PTO

1 - Drain the oil from the gearbox, remove hatch cover and the respective gasket and verify if PTO and transmission gears are compatible;

### Manufacturer's Declaration

ABER ensures compliance of its products with the essential health and safety requirements of the Directive 2006/42/EC and harmonized standard EN ISO 12100:2010.

### General information

The Power Take Offs are mechanical devices that transmit mechanical power. They are usually applied to transmissions from where the power is taken to be transmitted to the hydraulic pumps, intermediate shafts, etc. Normally applied in dumpers, cranes, cleaning systems, moving floors, compressors, etc. This device stands out do to the fact of almost non-existence noise and its high efficiency.

### Safety information



- Do not attempt to work or install a Power Take-Off with the engine running.
- A PTO must be properly matched to the vehicle transmission and to the auxiliary equipment. An incorrect matched could cause several damage to the vehicle transmission and the auxiliary equipment.

#### ATTENTION

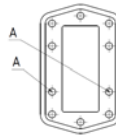
- Do not exceed the limits of power and torque in the technical sheet.
- The decisions of install guards in the PTO warning shall be the responsibility of the designers or installers.

### Maintenance

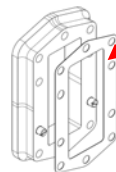
Monthly	Annually
<ul style="list-style-type: none"> <li>-Check the transmission oil level. We advise seeing the vehicle manufacturer recommendations.</li> <li>-Check for PTO leaks under and around the vehicle. Any leaks found should be stopped immediately</li> <li>-Check the tightness of the fixation studs and if necessary tighten more. Consult torque table to tight studs correctly.</li> </ul>	<ul style="list-style-type: none"> <li>-Check the transmission oil level. We advise seeing the vehicle manufacturer recommendations.</li> <li>-Check for PTO leaks under and around the vehicle. Any leaks found should be stopped immediately</li> <li>-Check the tightness of the fixation studs and if necessary tighten more. Consult torque table to tight studs correctly.</li> <li>-Visual inspection of all the components and if necessary proceed with the repair.</li> </ul>



2 - Clean the lip of the hatch with a wire brush or spatula, being careful not to let any foreign bodies into the transmission;



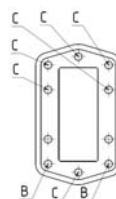
3 - In the PTO mounting Kit find the two alignment studs. Fit the studs in the respective holes (A) accord to the schematic image.



4 - Fit one or more gaskets as needed, between the inspection hatch and the PTO body. Ensure that the teeth of the gears in the transmission and those in the PTO are properly meshed.

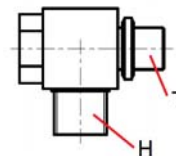
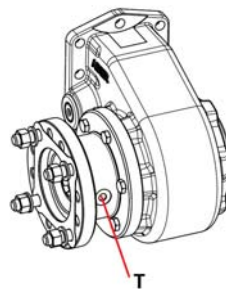
#### ATTENTION

Do not use more than three gaskets.



5 - Fit the screws, and washers according to the schematic image. The 25 mm screws and washers are fitted in the (B) holes and the 30mm screws and washers are fitted in the (C) holes. Consult torque table to tighten screws correctly.

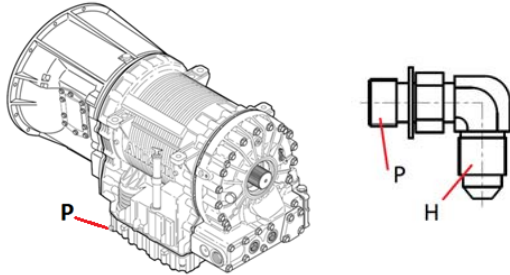
6 - Attach the 90° elbow fitting provided in the kit to the PTO threaded hole (T)



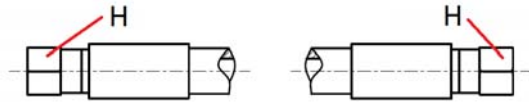


## CONSTANT DRIVE 10 BOLT MOUNT POWER TAKE OFF RECOMMENDATIONS BEFORE START-UP

7 - Attach the 90° elbow fitting provided in the kit to the threaded hole (P) on the transmission.



8 - Attach the hydraulic hose to the fittings (H). Check oil level and signs of oil leakage.



### Faults, causes and remedies

Faults	Causes	Remedies
Noise	<ol style="list-style-type: none"> <li>1. Assembly clearance</li> <li>2. Broken teeth</li> <li>3. Damaged roller-bearings</li> </ol>	<ol style="list-style-type: none"> <li>1. Check/adjust the looseness between the teeth and the thickness of the gaskets</li> <li>2-3. Repair or replace</li> </ol>
Over-heating	<ol style="list-style-type: none"> <li>1. Lack of lubrication</li> <li>2. Too tight between the wheel of the PTO and the wheel of the transmission</li> </ol>	<ol style="list-style-type: none"> <li>1. Refill the oil level</li> <li>2. Adjust the gap between teeth with the thickness of the gaskets</li> </ol>
Leaks	<ol style="list-style-type: none"> <li>1. Loose fixation nuts and studs</li> <li>2. Damaged gasket</li> </ol>	<ol style="list-style-type: none"> <li>1. Tight according to recommendations</li> <li>2. Replace gasket for another with the same thickness</li> </ol>
No transmission of movement	<ol style="list-style-type: none"> <li>1. PTO blockage</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace control</li> </ol>



- A PTO should be mounted by qualified personnel. The correct mounting of the PTO is influenced by the ability of the operator.
- Always read carefully all owner's manuals, or other instructions before installation of PTO and driven equipment.
- In case of difficulties please ask our service department for advice.
- To install a PTO, the vehicle must be parked on a flat surface with the engine off and parking brake applied.
- Use appropriated tools and safety equipment.
- Ensure that the system cannot boot involuntarily.
- Ensure that the levels and quality of the oil are as recommended, that there are no leaks and that everything is properly tightened before starting.
- When the PTO is working, never touch or pull hoses or intermediate shaft when applied. When intermediate shaft is applied take into account that parts can be ejected.
- The application of the ABER's PTO must follow all the instructions hereby mentioned in order to assure the safety of all personal working with the equipment including its surroundings, assure a long life to the product and preserve the warranty of the brand. All applications that do not follow the hereby instruction are solely the users responsibility. If there should happen any malfunctioning, it is strictly forbidden the disassembly of the product except if it is being made by a qualified technician of the brand or if there is a special authorization to do that. If this specification should not be followed, all warranties might be lost.

CTI Constant drive 10 bolt mount PTO recommendations before start-up 1405- 1

ABER is constantly engaged in improving its products and, therefore, reserves itself the right to modify without any further notice the characteristics shown



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# POWER TAKE OFF RECOMMENDATIONS BEFORE START-UP



## Manufacturer's Declaration

ABER ensures compliance of its products with the essential health and safety requirements of the Directive 2006/42/EC and harmonized standard EN ISO 12100:2010.

## General information

The Power Take Offs are mechanical devices that transmit mechanical power. They are usually applied to gearboxes from where the power is taken to be transmitted to the hydraulic pumps, intermediate shafts, etc. Normally applied in dumpers, cranes, cleaning systems, moving floors, compressors, power generators, etc. This device stands out do to the fact of almost non-existence noise and its high efficiency.

## How to use

The following procedure is not valid for automatic gearboxes. The procedure to operate the PTO should always be made with the vehicle parked, parking brake actuated, engine running and in neutral.

1. press the clutch for 5/10 seconds;
2. turn on PTO control (pneumatic, vacuum, electric or mechanic);
3. release the clutch slowly;

To disconnect the PTO:

1. press the clutch for 5/10 seconds;
2. turn off PTO control;
3. release the clutch;

**ATTENTION**

PTO must be turned off, before the vehicle starts moving again. Do not exceed the limits of power and torque in the technical sheet. The incorrect engagement and disengagement, may cause premature equipment damage.

## Maintenance

Daily	Monthly	Annually
-Check the tightness of the pneumatic system and the light switches.	-Check the tightness of the pneumatic system and the light switches. -Check the oil level and refill if necessary. We advise seeing the gearbox manufacturer recommendations. -Check the tightness of the fixation studs and if necessary tighten more. Consult torque table to tight studs correctly. -Visual inspection of all the components and if necessary proceed with the repair.	-Check the tightness of the pneumatic system and the light switches -Check the oil level and refill if necessary. We advise seeing the gearbox manufacturer recommendations. -Check the tightness of the fixation studs and if necessary tighten more. Consult torque table to tight studs correctly. -Visual inspection of all the components and if necessary proceed with the repair. -Clean the gearbox and if necessary proceed with the repair.

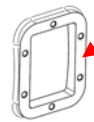
## General information to mount a PTO

- The general instructions contained in this document do not replace specific information of any component involved in the assembly.
- To install the PTO, the vehicle must be parked on a flat surface with the engine off and parking brake applied.
- Use only the components supplied with PTO.
- Before final tightening, we recommend that you tighten the lock-nuts to the minimum torque and operate the PTO for 10/15 seconds. This allows the gears in the gearbox to self-align and also to check for any excessive noise.
- Before re-filling the gear-box with oil it is advisable to check the noise level of the PTO. If the PTO produces a hissing noise, this means that there is insufficient backlash in which case another gasket must be added. If the Power Take-off rattles, this indicates that there is too much backlash and the number of gaskets must be reduced. Once the gearbox has been re-filled with oil, make sure there are no leaks. Make sure that the power required from the unit is effectively obtainable from the gearbox. If the Power Take-off becomes noisy after the additional assembly of a universal joint, make sure that the joint is not damaged nor the are the edges of the gearbox and PTO.

Torque Table			
Size (mm - inch)	M8 3/8"	M10 7/16"	M12
Screws and nuts Torque (Nm)	25	50	80
Studs Torque (Nm)	10	20	30

## Installation of a side mount PTO

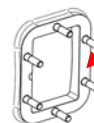
- 1 - Drain the oil from the gearbox, remove hatch cover and the respective gasket and verify if PTO and gearbox gears are compatible;



- 2 - Clean the lip of the hatch with a wire brush or spatula, being careful not to let any foreign bodies into the gearbox;



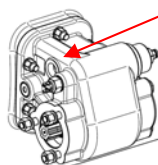
- 3 - If the PTO uses studs, fit them on the gearbox. Consult torque table to tighten studs correctly. In the case of through-threading, make sure that the studs do not interfere with the gears inside the gearbox. Apply a sealing glue to the thread of the studs;



- 4 - Fit one or more gaskets as needed, between the inspection hatch and the PTO body. Ensure that between the teeth of the gears in the gearbox and those in the PTO there is a backlash of 0,15/0,3 mm.

**ATTENTION**

Do not use more than three gaskets.



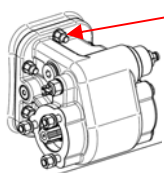
- 5 - Fit the PTO to the gearbox. On the PTO body there is a plug, if unscrewed, it's large enough to allow manual checking of backlash between the PTO and the gears of the gearbox. The upper wheel of the PTO should move manually and not be too loose, that is, not hitting anything.



This should be checked with the engine off and the truck blocked with the parking brake.



# POWER TAKE OFF RECOMMENDATIONS BEFORE START-UP



6 - Fit the PTO tightly onto the gearbox. Consult torque table to tighten studs correctly. This operation is more secure when using a dynamometric spanner. Check the oil quality and level recommended by the manufacturer of the vehicle and refill the oil of the gearbox.

7 - Place fittings and accessories for control.

## Installation of a rear mount PTO

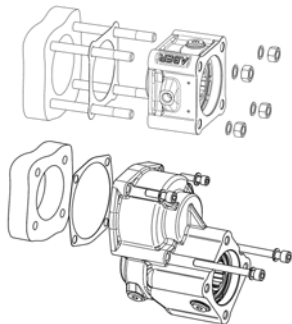
1-Drain the oil from the gearbox (in some gearboxes this step is no needed because the oil level does not reach the rear door), find the rear open and remove its cover and the respective gasket.

2-Clean the surface of the hatch with a wire brush or spatula, being careful not to let any foreign bodies in the gearbox;

3-If the PTO uses studs, fit them on the gearbox. Consult torque table to tighten studs correctly. In the case of through-threading, make sure that the studs do not interfere with the gears inside the gearbox. Apply a sealing glue to the thread of the studs;

4-Fit one gasket between the inspection hatch and the PTO body.

5- Install the PTO on the gearbox (install pump in PTO when studs are used to fix both components) and tighten the screws using the tightening torque indicated in the torque table.



6-Check the oil and the level given by the manufacturer of the vehicle and refill the oil of the gearbox taking into account the presence of the PTO.

7-Place the fitting and the air pipe.

**ATTENTION** For multi axis PTO it is recommend that you assemble the PTO according to the positions indicated in the following diagram, which ensure a good lubrication of the internal components.



- A PTO should be mounted by qualified personnel. The correct mounting of the PTO is influenced by the ability of the operator.
- In case of difficulties please ask our service department for advice.
- To install a PTO, the vehicle must be parked on a flat surface with the engine off and parking brake applied.
- Use appropriated tools.
- Ensure that the system cannot boot involuntarily.
- Ensure that the levels and quality of the oil are as recommended, that there are no leaks and that everything is properly tightened before starting.
- When the PTO is working, never touch or pull hoses or intermediate shaft when applied. When intermediate shaft is applied take into account that parts can be ejected.

-The application of the ABER's PTO must follow all the instructions hereby mentioned in order to assure the safety of all personal working with the equipment including its surroundings, assure a long life to the product and preserve the warranty of the brand. All applications that do not follow the hereby instruction are solely the users responsibility. If there should happen any malfunctioning, it is strictly forbidden the disassembly of the product except if it is being made by a qualified technician of the brand or if there is a special authorization to do that. If this specification should not be followed, all warranties might be lost.

Vertical assembly Low outlet 	
Horizontal assembly  Use lubrication kit	
Vertical assembly High outlet  Use lubrication kit	

## Faults, causes and remedies

Faults	Causes	Remedies
Noise	1.Vehicles clutch is not working properly 2. Assembly clearance 3.Broken teeth 4.Damaged roller-bearings	1.Fully press the clutch or wait more time for the gearbox gearing to stop 2. Check/adjust the looseness between the teeth and the thickness of the gaskets 3-4.Repair or replace
Over-heating	1-2.Lack of lubrication 3.Too tight between the wheel of the PTO and the wheel of the gearbox	1.Refill the oil level 2.Use a PTO with a lubrication hose connected directly to the gearbox 3.Adjust the gap between teeth with the thickness of the gaskets
Leaks	1.Loose fixation nuts and studs 2.Damaged gasket	1.Tight according to recommendations 2.Replace gasket for another with the same thickness
PTO doesn't engage	1.Obstructed air hose 2.Low air pressure 3.Control failure	1.Clean or replace hose 2.Check for leak source and fix it 3.Repair or replace control
PTO doesn't disengage	1. Internal PTO problem	1.Repair or replace control
No transmission of movement	1.PTO blockage	1.Repair or replace control

CTI PTO recommendations before start-up 1405-2

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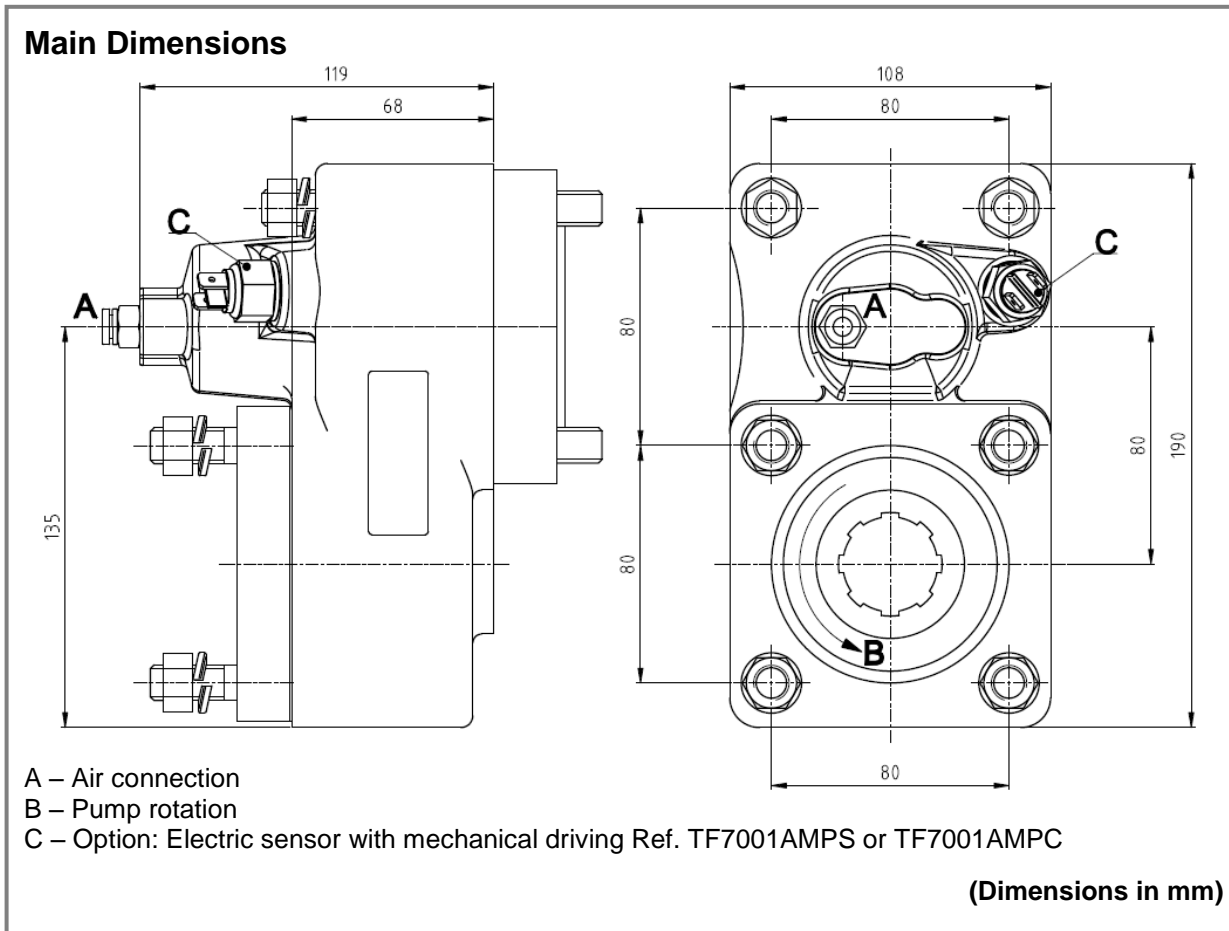


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<b>Power Take Offs</b> Relation 1 : 1,32		Ref. TF7001AMP
<b>EATON</b>	FS 4106 ; FSO 4106 ; FS 5206 ; FSO 5206 ; FS 6106	

To apply with Gear Pumps or with Piston Pumps



Main Data			
<b>Continuous Torque (Nm)</b>	<b>300</b>		
<b>Intermittent Torque (Nm)</b>	<b>420</b>		
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>		
<b>Mounting Position</b>	<b>Rear</b>		
<b>Pump Rotation</b>	<b>Right Hand</b>		
<b>Weight (Kg)</b>	<b>12</b>		
<b>PTO internal ratio</b>	<b>1:1,32</b>		
<b>Indicative ratio from motor to PTO's output</b>			
FS 4106 ; FSO 4106 / 7.54	- 1 : 0.684	FS 6106 / 7.54	- 1 : 0.684
/ 6.08	- 1 : 0.849	/ 6.08	- 1 : 0.849
/ 9.03	- 1 : 0.572	/ 9.03	- 1 : 0.572
FS 5206 ; FSO 5206 / 7.54	- 1 : 0.684		
/ 6.08	- 1 : 0.849		
/ 9.03	- 1 : 0.572		

CTI TF7001AMP 1211- 3

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<b>Power Take Offs</b> Relation 1 : 1		Ref. TF7001SP
<b>EATON</b>	FS 4106 ; FSO 4106 ; FS 5206 ; FSO 5206 ; FS 6106	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Pump rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7001SPS or TF7001SPC

**(Dimensions in mm)**

Main Data			
<b>Continuous Torque (Nm)</b>		<b>300</b>	
<b>Intermittent Torque (Nm)</b>		<b>420</b>	
<b>Power (at 1000 r.p.m)</b>		<b>42 C.V. / 32 Kw</b>	
<b>Mounting Position</b>		<b>Rear</b>	
<b>Pump Rotation</b>		<b>Left Hand</b>	
<b>Weight (Kg)</b>		<b>5</b>	
<b>PTO internal ratio</b>		<b>1:1</b>	
<b>Indicative ratio from motor to PTO's output</b>			
FS 4106 ; FSO 4106 / 7.54	.- 1 : 0.518	FS 6106 / 7.54	.- 1 : 0.518
/ 6.08	.- 1 : 0.643	/ 6.08	.- 1 : 0.643
/ 9.03	.- 1 : 0.433	/ 9.03	.- 1 : 0.433
FS 5206 ; FSO 5206 / 7.54	.- 1 : 0.518		
/ 6.08	.- 1 : 0.643		
/ 9.03	.- 1 : 0.433		

CTI TF7001SP 1211-5

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<b>Power Take Offs</b> Relation 1 : 1,32		Ref. TF7002AMP
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Pump rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7002AMPS or TF7002AMPC  
 1 – Flange  
 2 – Bearing  
 3 – Circlip  
 4 – Adapter shaft VK7002  
 5 – Adapter sleeve  
 6 – Adapter washer  
 7 – TF4002AMP

**(Dimensions in mm)**

Main Data	
<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Rear</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>13.5</b>
<b>PTO internal ratio</b>	<b>1:1,32</b>
<b>Indicative ratio from motor to PTO's output</b>	
5109 DT           .- 1 : 0.937	FS 8209 A           .- 1 : 1.080
5109 OD           .- 1 : 1.238	FSO 8209 A       .- 1 : 1.080
6109 DT           .- 1 : 1.011	FS 8309 A           .- 1 : 1.080
6109 OD           .- 1 : 1.352	FSO 8309 A       .- 1 : 1.080

CTI TF7002AMP 1211- 2

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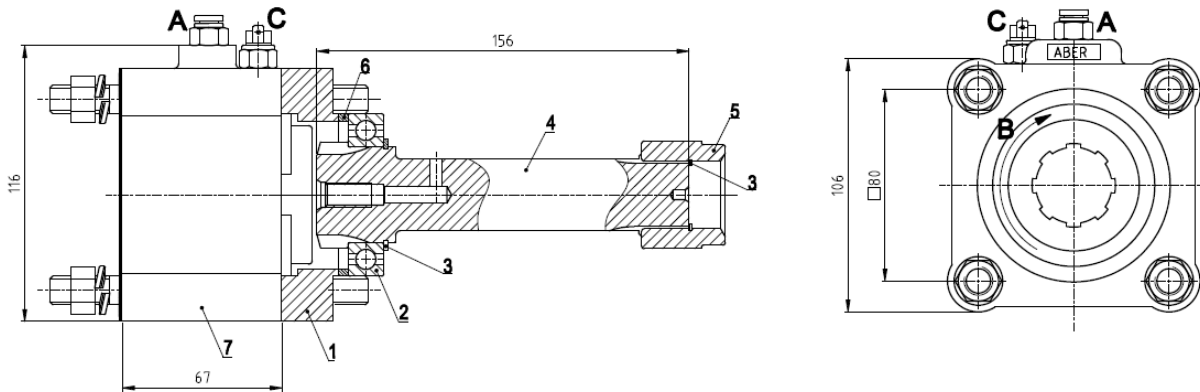




<b>Power Take Offs</b>		Ref. TF7002SP
Relation 1 : 1		
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions



- A – Air connection
- B – Pump rotation
- C – Option: Electric sensor with mechanical driving Ref. TF7002SPS or TF7002SPC
- 1 – Flange
- 2 – Bearing
- 3 – Circlip
- 4 – Adapter shaft VK7002
- 5 – Adapter sleeve
- 6 – Adapter washer
- 7 – TF4002SP

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>		
<b>Intermittent Torque (Nm)</b>	<b>420</b>		
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>		
<b>Mounting Position</b>	<b>Rear</b>		
<b>Pump Rotation</b>	<b>Left Hand</b>		
<b>Weight (Kg)</b>	<b>6,5</b>		
<b>PTO internal ratio</b>	<b>1:1</b>		
<b>Indicative ratio from motor to PTO's output</b>			
5109 DT	- 1 : 0.709	FS 8209 A	- 1 : 0.818
5109 OD	- 1 : 0.937	FSO 8209 A	- 1 : 0.818
6109 DT	- 1 : 0.765	FS 8309 A	- 1 : 0.818
6109 OD	- 1 : 1.024	FSO 8309 A	- 1 : 0.818

CTI TF7002SP 1211- 2

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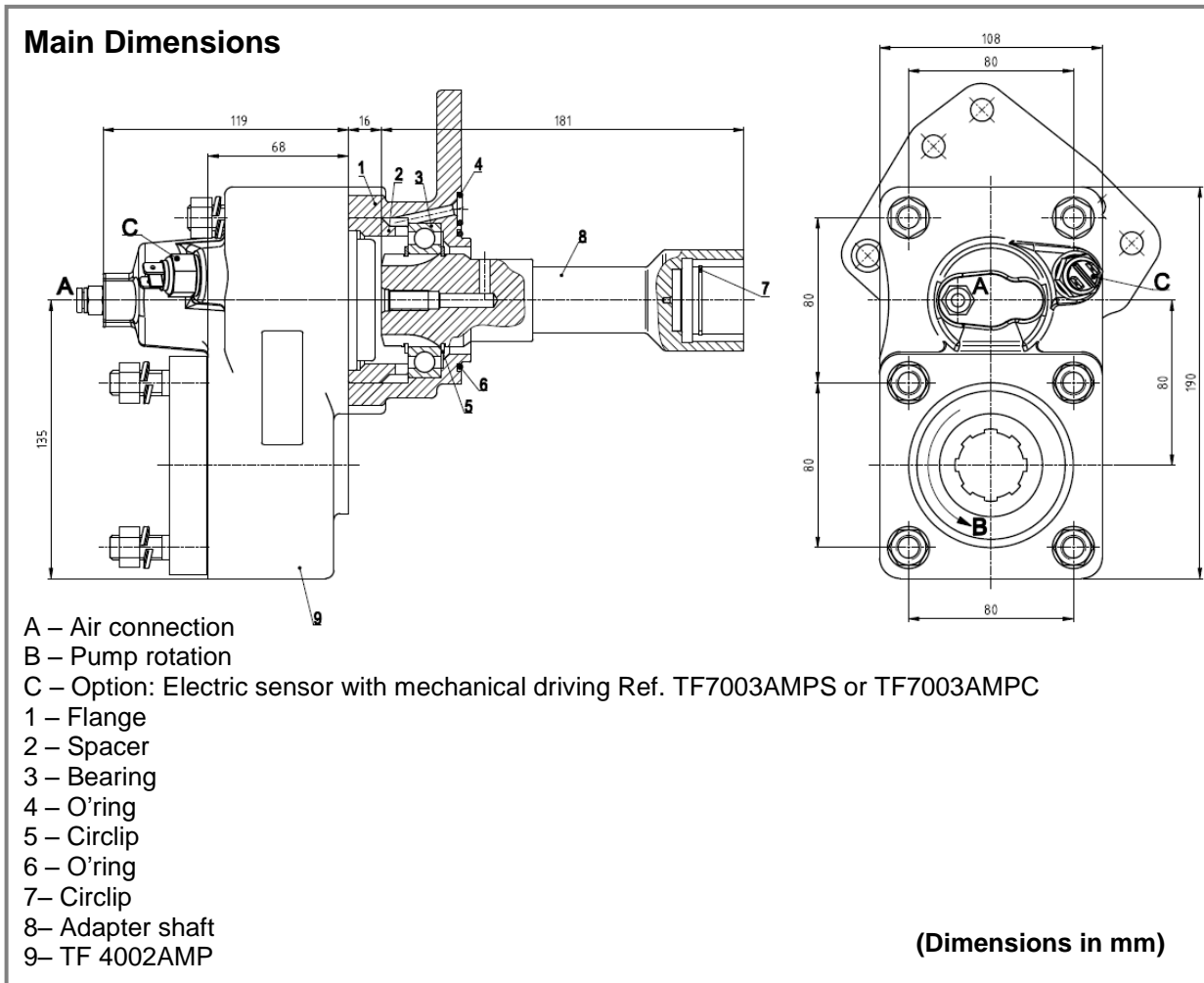


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<b>Power Take Offs</b> Relation 1 : 1,32		Ref. TF7003AMP
<b>EATON</b>	RTS 12316 ; RTS 15316 ; RTS 17316 ; RTSO 12316A ; RTSO 15316A ; RTSO 17316A	

To apply with Gear Pumps or with Piston Pumps



Main Data	
<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Rear</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>15</b>
<b>PTO internal ratio</b>	<b>1:1,32</b>
<b>Indicative ratio from motor to PTO’s output</b>	
RTS 12316, 15316, 17316	High: - 1 : 1.015      Normal: - 1 : 0.830
RTSO 12316A, 15316A, 17316A	High: - 1 : 1.215      Normal: - 1 : 1.015

CTI TF7003AMP 1211- 2

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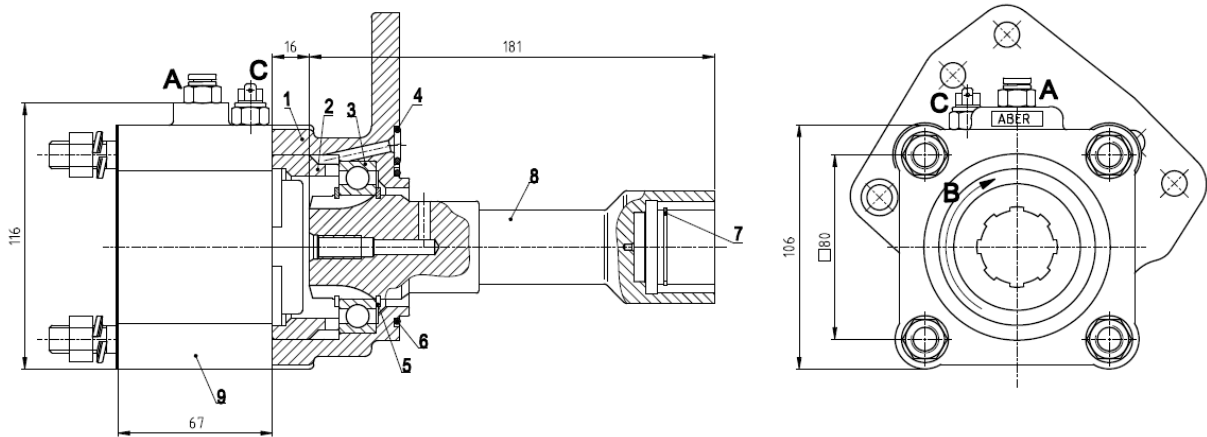
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 Rua Francisco de Almeida, Nº 30 – Vila Nova da Telha – 4470 MAIA - Portugal  
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<b>Power Take Offs</b> Relation 1 : 1		Ref. TF7003SP
<b>EATON</b>	RTS 12316 ; RTS 15316 ; RTS 17316 ; RTSO 12316A ; RTSO 15316A ; RTSO 17316A	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions



- A – Air connection
- B – Pump rotation
- C – Option: Electric sensor with mechanical driving Ref. TF7003SPS or TF7003SPC
- 1 – Flange
- 2 – Spacer
- 3 – Bearing
- 4 – O’ring
- 5 – Circlip
- 6 – O’ring
- 7– Circlip
- 8– Adapter shaft
- 9– TF 4002SP

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>	
<b>Intermittent Torque (Nm)</b>	<b>420</b>	
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>	
<b>Mounting Position</b>	<b>Rear</b>	
<b>Pump Rotation</b>	<b>Left Hand</b>	
<b>Weight (Kg)</b>	<b>7.5</b>	
<b>PTO internal ratio</b>	<b>1:1</b>	
<b>Indicative ratio from motor to PTO’s output</b>		
RTS 12316, 15316, 17316	High: .- 1 : 0.770	Normal: .- 1 : 0.629
RTSO 12316A, 15316A, 17316A	High: .- 1 : 0.920	Normal: .- 1 : 0.770

CTI TF7003SP 1211- 2

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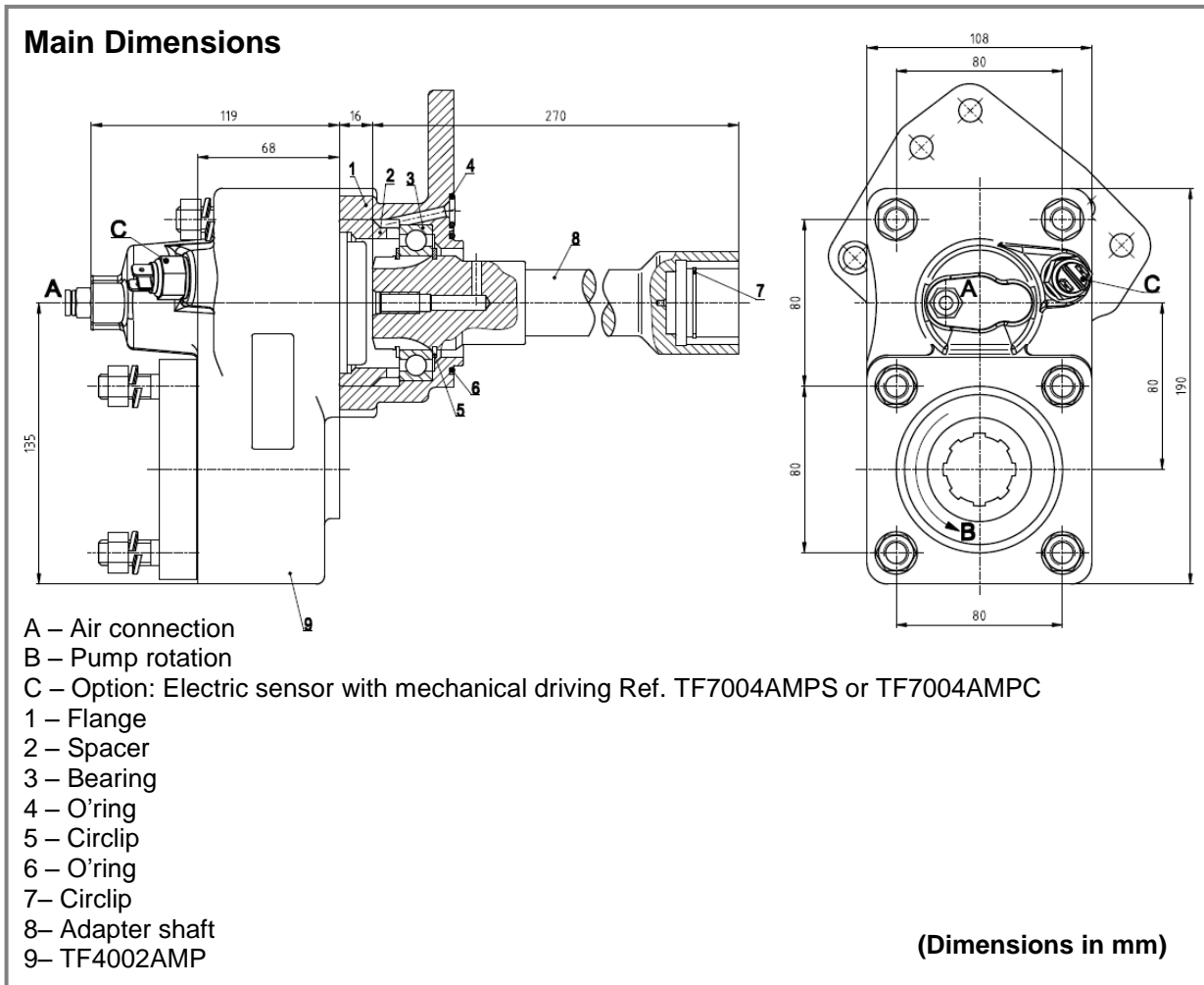
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<b>Power Take Offs</b> Relation 1 : 1,32		Ref. TF7004AMP
<b>EATON</b>	RTS 12316 ; RTS 15316 ; RTS 17316 ; RTSO 12316A ; RTSO 15316A ; RTSO 17316A IT	

To apply with Gear Pumps or with Piston Pumps



Main Data	
<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Rear</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>15.5</b>
<b>PTO internal ratio</b>	<b>1:1,32</b>
<b>Indicative ratio from motor to PTO’s output</b>	
RTS 12316, 15316, 17316	High: .- 1 : 1.015      Normal: .- 1 : 0.830
RTSO 12316A, 15316A, 17316A	High: .- 1 : 1.215      Normal: .- 1 : 1.015

CTI TF7004AMP 1211- 2

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<b>Power Take Offs</b> Relation 1 : 1		Ref. TF7004SP
<b>EATON</b>	RTS 12316 ; RTS 15316 ; RTS 17316 ; RTSO 12316A ; RTSO 15316A ; RTSO 17316A IT	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Pump rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7004SPS or TF7004SPC  
 1 – Flange  
 2 – Spacer  
 3 – Bearing  
 4 – O’ring  
 5 – Circlip  
 6 – O’ring  
 7– Circlip  
 8– Adapter shaft  
 9– TF4002SP

**(Dimensions in mm)**

Main Data	
<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Rear</b>
<b>Pump Rotation</b>	<b>Left Hand</b>
<b>Weight (Kg)</b>	<b>8.5</b>
<b>PTO internal ratio</b>	<b>1:1</b>
<b>Indicative ratio from motor to PTO’s output</b>	
RTS 12316, 15316, 17316	High: .- 1 : 0.770      Normal: .- 1 : 0.629
RTSO 12316A, 15316A, 17316A	High: .- 1 : 0.920      Normal: .- 1 : 0.770

CTI TF7004SP 1211- 2

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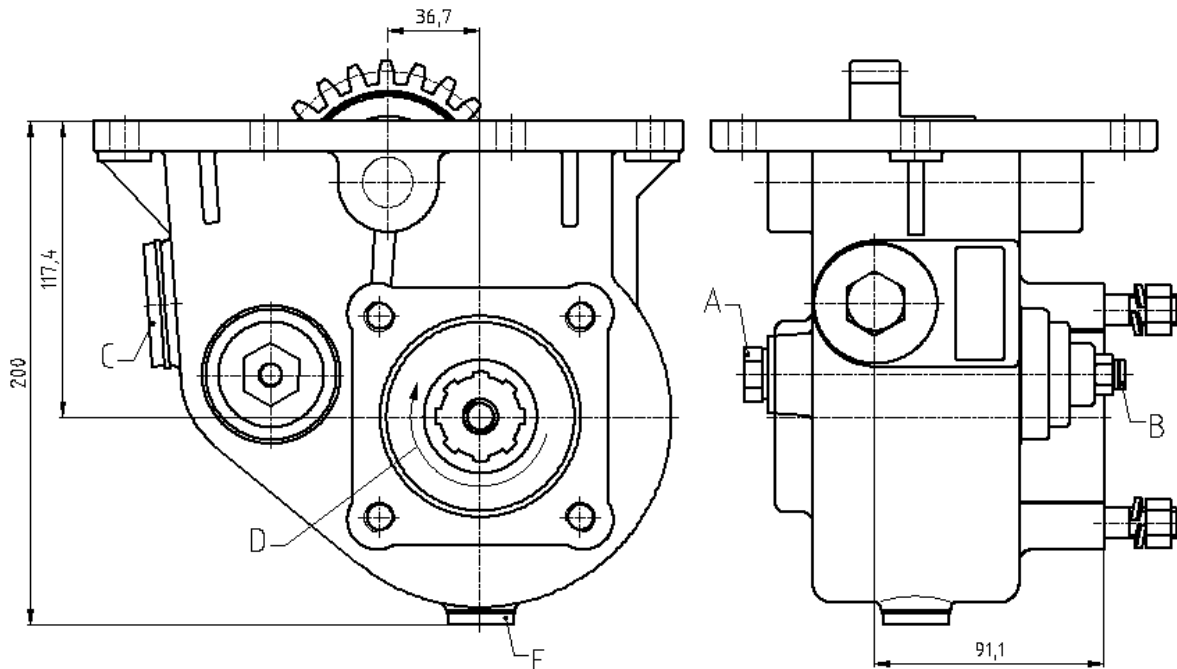
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<b>Power Take Offs</b>		Ref. TF7007P
<b>EATON FULLER</b>	RT ; RTO ; RTOO ; RTX 11609	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions



- A – Option: Electric sensor with mechanical driving Ref. TF7007PS or TF7007PC
- B – Air connection
- C – Backlash check plug
- D – Pump rotation
- E – Oil drain plug

(Dimensions in mm)

Main Data	
<b>Continuous Torque (Nm)</b>	<b>380</b>
<b>Intermittent Torque (Nm)</b>	<b>530</b>
<b>Power (at 1000 r.p.m)</b>	<b>53 C.V. / 39 Kw</b>
<b>Mounting Position</b>	<b>Bottom</b>
<b>Pump Rotation</b>	<b>Left Hand</b>
<b>Weight (kg)</b>	<b>16</b>
<b>PTO internal ratio</b>	<b>1:0,71</b>
<b>Indicative ratio from motor to PTO's output</b>	

CTI TF7007P 1211- 4

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<b>Power Take Offs</b>		Ref. TF7007P
<b>EATON FULLER</b>	RT ; RTO ; RTOO ; RTX 11609	

Gear box	Ratio
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7 Speeds	
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<i>T-14607A</i>	1,421
<i>T-14607B</i>	1,421
<i>TX-14607B</i>	1,922

9 Speeds	
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<i>RT-6609A</i>	0,848
<i>RT-8608L</i>	0,974
<i>RTX-11609B</i>	1,326
<i>RTX-12609B</i>	1,326
<i>RTX-13609B</i>	1,326
<i>RTX-14609B</i>	1,326
<i>RTX-16709B</i>	1,326
<i>RT-8709B</i>	1,175
<i>RT-11709H</i>	1,175
<i>RT-12709H</i>	1,175
<i>RT-13709H</i>	1,175
<i>RT-14709H</i>	1,175
<i>RTOC-16909A</i>	1,175

10 Speeds	
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<i>RT-8908LL</i>	1,175
<i>RTO-11908LL</i>	1,578
<i>RTO-14908LL</i>	1,578
<i>RTO-16908LL</i>	1,578
<i>FR-9210B</i>	1,091
<i>FR-11210B</i>	1,091
<i>FR-12210B</i>	1,091
<i>FR-13210B</i>	1,091
<i>FR-14210B</i>	1,091
<i>FR-15210B</i>	1,091
<i>FRO-11210B</i>	1,460
<i>FRO-12210B</i>	1,460
<i>FRO-13210B</i>	1,460
<i>FRO-14210B</i>	1,460
<i>FRO-15210B</i>	1,460
<i>FRO-16210B</i>	1,460
<i>FRO-11210C</i>	1,460
<i>FRO-12110C</i>	1,410
<i>FRO-13210C</i>	1,410
<i>FRO-14210C</i>	1,410
<i>FRO-15210C</i>	1,410
<i>FRO-16210C</i>	1,410
<i>FRO-17210C</i>	1,410
<i>FRO-18210C</i>	1,410

Gear box	Ratio
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11 Speeds	
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<i>RTO-11909ALL</i>	1,326
<i>RTO-14909ALL</i>	1,326
<i>RTO-16909ALL</i>	1,326

13 Speeds	
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<i>RTLO-12913A</i>	1,326
<i>RTLO-14913A</i>	1,326
<i>RTLO-16913A</i>	1,326
<i>RTLO-18913A</i>	1,326
<i>RTLO-20913A</i>	1,326

15 Speeds	
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<i>RT-14915</i>	1,175
<i>RTO-14915</i>	1,494
<i>RTO-16915</i>	1,494

18 Speeds	
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<i>RTLO-14918B</i>	1,326
<i>RTLO-16918B</i>	1,326
<i>RTLO-18918B</i>	1,326
<i>RTLO-20918B</i>	1,326
<i>RTLO-21918B</i>	1,326

CTI TF7007P 1211- 4

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## Power Take Offs

Ref. TF7007P

**EATON FULLER**

RT ; RTO ; RTOO ; RTX 11609

Gear box	Ratio	Gear box	Ratio	Gear box	Ratio	Gear box	Ratio
RT509	0,851	RT6610	0,845	RT11613	1,172	RTO14609A	1,568
RT510	0,851	RTO6610	1,057	RT11613C	1,172	RTO14609B	1,321
RT609	0,851	RT6613	0,845	RTF11613	1,172	RTX14609A	1,568
RTO609	1,057	RTO6613	1,058	RTO11613	1,172	RTX14609B	1,321
RT610	0,851	RT7609	0,851	RTOF11613	1,172	RTOF14609A	1,568
RT613	0,851	RTO7609	1,123	RTOO11613	1,321	RTOF14609B	1,321
RTO613	1,057	RTX7609	1,123	RTOOF11613	1,321	RTOX14609B	1,321
T905G	1,172	TA7610	1,172	RTOOX11613	1,321	RT14610	1,172
RT906	1,172	RT7613	0,845	RTX11613B	1,568	RTO14610	1,481
RT906A	1,172	RTO7613	0,845	RT11615	1,172	RT14613	1,172
RTF906	1,172	RT8608L	0,962	RTO11615	1,481	RT14613B	1,172
RTF906A	1,172	RT9509A	1,172	RTOX11708LL	1,580	RTF14613	1,172
RT909	1,172	RT9509C	1,172	RT11709H	1,172	RTLO14613B	1,172
RT909A	1,172	RTF9509A	1,172	RTX11709B	1,321	RTO14613	1,172
RTF909	1,172	RTO9509A	1,580	RT11710B	1,172	RTOF14613	1,172
RTF909A	1,172	RTO9509B	1,321	RT11715	1,172	RTOO14613	1,321
RTO909A	1,583	RTOF9509A	1,580	RTO11715	1,481	RTOOF14613	1,321
RTO909B	1,583	RTOF9509B	1,321	RT12509	1,172	RTOOX14613	1,321
RTOF909A	1,583	MRTO9509A	1,580	RTF12509	1,172	RT14615	1,172
RTOF909B	1,583	MRTO9509B	1,321	RTO12509	1,583	RTO14615	1,481
RT910	1,172	RT9513	1,172	RTOF12509	1,583	RTX14615	1,481
RTF910	1,172	RTF9513	1,172	RT12510	1,172	RTLOF14618A	1,172
RTO910	1,451	RTO9513	1,172	RTO12510	1,487	RTOX14708LL	1,580
RT913	1,172	RTOF9513	1,172	RTF12510	1,172	RT14710B	1,172
RTF913	1,172	MRT9513	1,172	RTOF12510	1,487	RTO14710B	1,568
RTO 913	1,172	MRTO9513	1,172	RT12513	1,172	RT14715	1,172
RTO913A	1,172	RTOO9513	1,321	RTO12513	1,172	RTO14715	1,481
RTOF913	1,172	RT11509	1,172	RT12515	1,172	RTX14715	1,481
RT915	1,172	RTO11509	1,580	RTF12515	1,172	RTLO14718B	1,321
RTF915	1,172	RT11608	0,962	RTO12515	1,172	RT15613	1,172
RTO915	1,451	RTO11608	1,568	RT12609A	1,172	RT15613A	1,172
T955GL	1,172	RT116009A	1,172	RTO12609A	1,580	RT15613B	1,172
RT958LL	1,583	RTF11609A	1,172	RTO12609B	1,321	RTO15613	1,172
RTO958LL	1,583	RTO11609A	1,568	RT12610	1,172	RTO15613A	1,172
RT1110	1,172	RTO11609B	1,321	RT12709H	1,172	RTO15613B	1,172
RTO1110	1,487	RTX11609A	1,568	RT12710B	1,172	RT15615	1,321
RTO1213	1,172	RTX11609B	1,321	RTO12710B	1,568	RTO15615	1,172
RTO1258LL	1,583	RTOF11609A	1,568	RTX12710B	1,568	RTO15618	1,172
TA4510	1,172	RTOF11609B	1,321	RT13710B	1,172	RT15715	1,172
RT6609	0,845	RTOX11609A	1,568	RT14608	0,962	RTO15715	1,481
RTO6609	1,057	MRT11609	1,172	RTO14608LL	1,568	RTLO16618A	1,172
RTX6609	1,058	RT11610	1,172	RT14609A	1,172	RTLO16718B	1,321
RTOX6609	1,057	RTO11610	1,481	RTF14609A	1,172	RTLO18718B	1,321

CTI TF7007P 1211- 4

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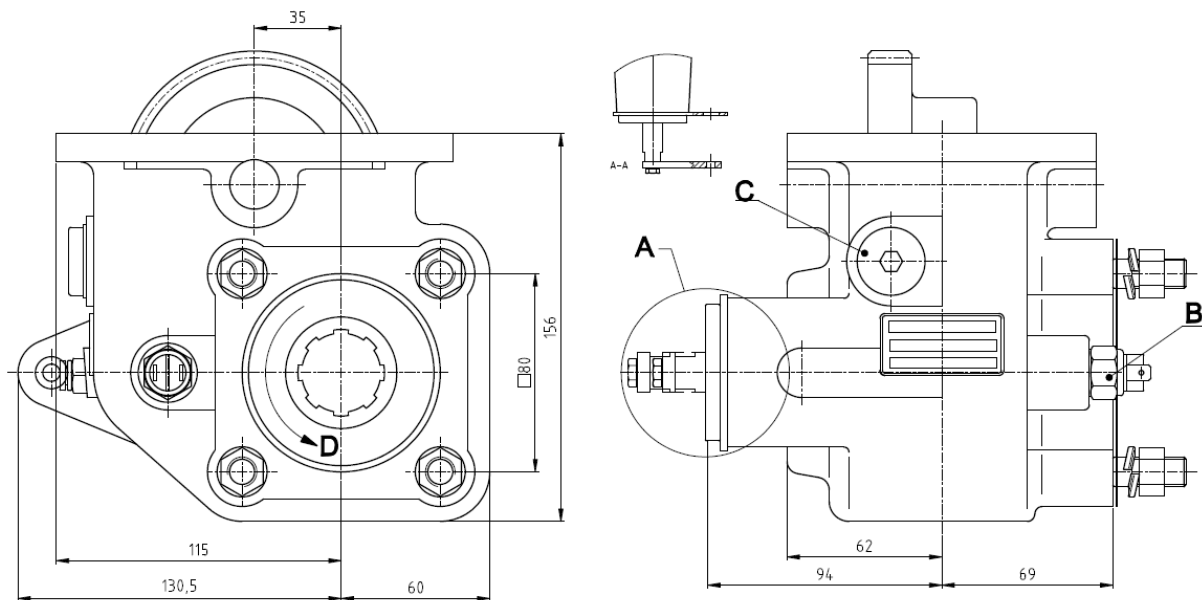
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<b>Power Take Offs</b>		Ref. TF7008M
<b>EATON</b>	6109 DT/OD ; 8209 ; 8309 ; ES11109	

### Main Dimensions



- A – Mechanic control
- B – Option: Electric sensor with mechanical driving Ref. TF7008MS or TF7008MC
- C – Oil drain plug
- D – Pump rotation

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Left</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>7.5</b>
<b>PTO internal ratio</b>	<b>1:1,28</b>
<b>Indicative ratio from motor to PTO's output</b>	
6109 DT, FS-8209A, 8309A	1:0,60
6109 OD, FSO-8209A	1:0,80

CTI TF7008M 1211-1

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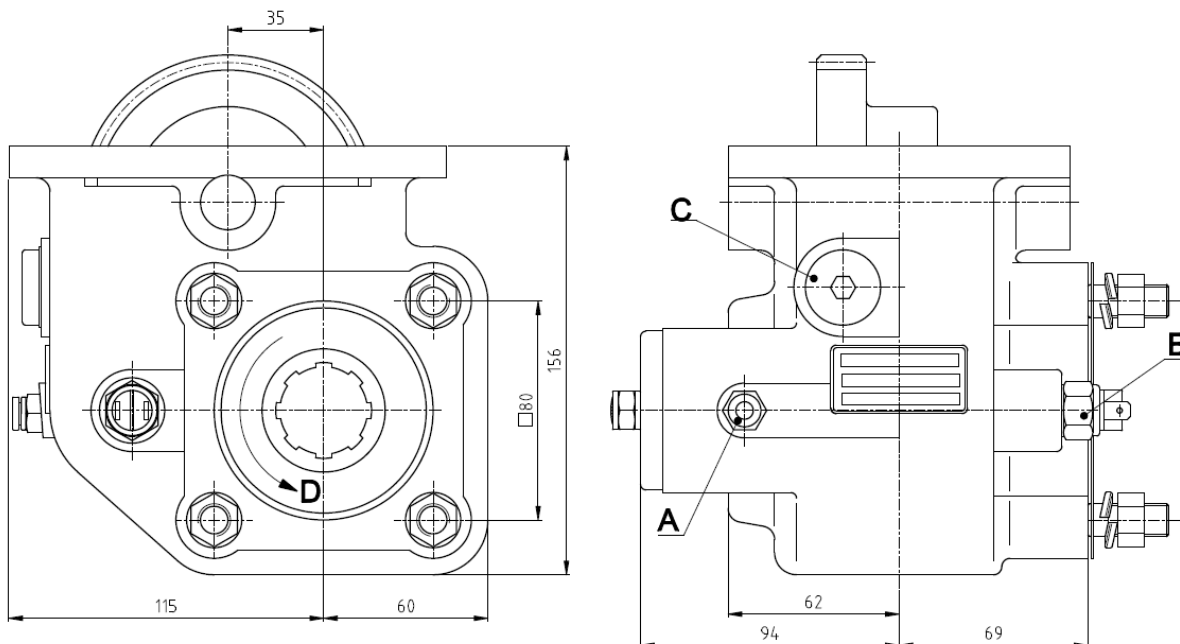
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<b>Power Take Offs</b>		Ref. TF7008P
<b>EATON</b>	6109 DT/OD ; 8209 ; 8309 ; ES11109	

### Main Dimensions



- A – Air connection
- B – Option: Electric sensor with mechanical driving Ref. TF7008PS or TF7008PC
- C – Oil drain plug
- D – Pump rotation

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Left</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>7</b>
<b>PTO internal ratio</b>	<b>1:1,28</b>
<b>Indicative ratio from motor to PTO's output</b>	
6109 DT, FS-8209A, 8309A	1:0,60
6109 OD, FSO-8209A	1:0,80

CTI TF7008P 1211-1

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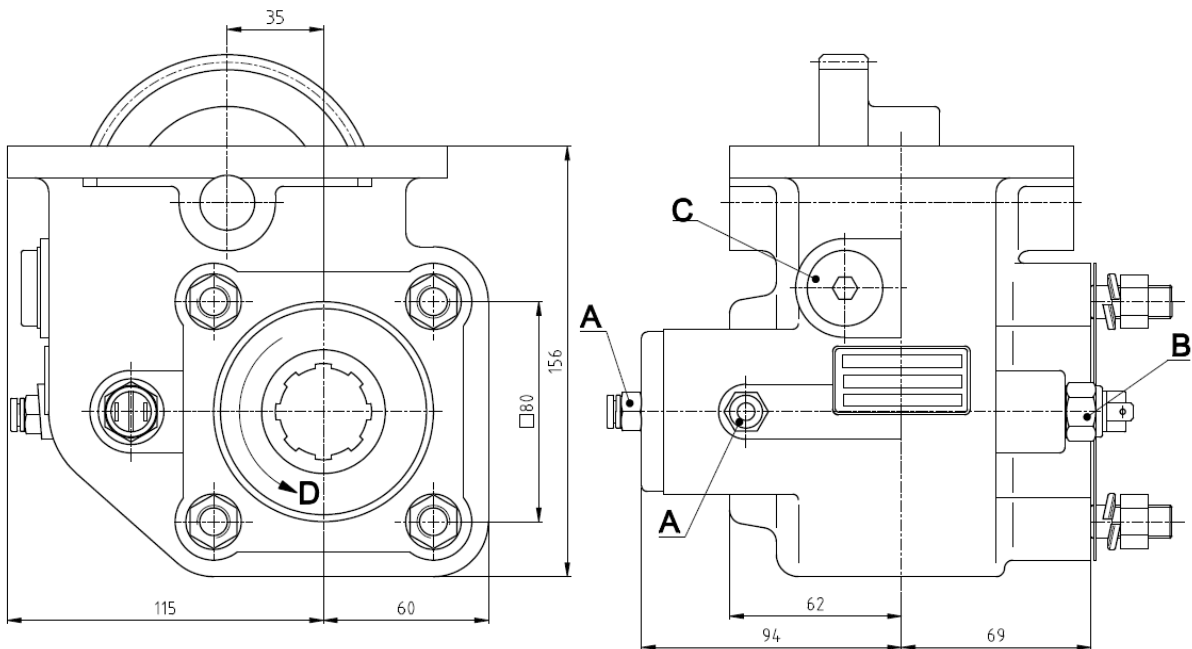
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<b>Power Take Offs</b>		Ref. TF7008V
<b>EATON</b>	6109 DT/OD ; 8209 ; 8309 ; ES11109	

### Main Dimensions



- A – Vacuum connection
- B – Option: Electric sensor with mechanical driving Ref. TF7008VS or TF7008VC
- C – Oil drain plug
- D – Pump rotation

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Mounting Position</b>	<b>Left</b>
<b>Pump Rotation</b>	<b>Right Hand</b>
<b>Weight (Kg)</b>	<b>7</b>
<b>PTO internal ratio</b>	<b>1:1,28</b>
<b>Indicative ratio from motor to PTO's output</b>	

6109 DT, FS-8209A, 8309A	1:0,60
6109 OD, FSO-8209A	1:0,80

CTI TF7008V 1211-1

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<b>Power Take Offs</b> Relation 1 : 1		Ref. TF7009AMP
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Sense of rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7009AMPS or TF7009AMPC  
 1 – Flange  
 2 – Bearing  
 3 – Circlip  
 4 – Adapter shaft VK7002  
 5 – Adapter sleeve  
 6 – Adapter washer  
 7 – TF4033AMP

**(Dimensions in mm)**

Main Data			
<b>Continuous Torque (Nm)</b>		<b>500</b>	
<b>Intermittent Torque (Nm)</b>		<b>550</b>	
<b>Power (at 1000 r.p.m)</b>		<b>69 C.V. / 51 Kw</b>	
<b>Mounting Position</b>		<b>Rear</b>	
<b>Pump Rotation</b>		<b>Right Hand</b>	
<b>Weight (Kg)</b>		<b>13.5</b>	
<b>PTO internal ratio</b>		<b>1:1</b>	
<b>Indicative ratio from motor to PTO's output</b>			
5109 DT	- 1 : 0.709	FS 8209 A	- 1 : 0.818
5109 OD	- 1 : 0.937	FSO 8209 A	- 1 : 0.818
6109 DT	- 1 : 0.765	FS 8309 A	- 1 : 0.818
6109 OD	- 1 : 1.024	FSO 8309 A	- 1 : 0.818

CTI TF7009AMP 1211-1

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<b>Power Take Offs</b> Relation 1 : 1,73		Ref. TF7010AMP
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Sense of rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7010AMPS or TF7010AMP  
 1 – Flange  
 2 – Bearing  
 3 – Circlip  
 4 – Adapter shaft VK7002  
 5 – Adapter sleeve  
 6 – Adapter washer  
 7 – TF4034AMP

**(Dimensions in mm)**

Main Data			
<b>Continuous Torque (Nm)</b>		<b>350</b>	
<b>Intermittent Torque (Nm)</b>		<b>450</b>	
<b>Power (at 1000 r.p.m)</b>		<b>48 C.V. / 36 Kw</b>	
<b>Mounting Position</b>		<b>Rear</b>	
<b>Pump Rotation</b>		<b>Right Hand</b>	
<b>Weight (Kg)</b>		<b>13.5</b>	
<b>PTO internal ratio</b>		<b>1:1,73</b>	
<b>Indicative ratio from motor to PTO's output</b>			
5109 DT	- 1 : 1.227	FS 8209 A	- 1 : 1.415
5109 OD	- 1 : 1.621	FSO 8209 A	- 1 : 1.415
6109 DT	- 1 : 1.324	FS 8309 A	- 1 : 1.415
6109 OD	- 1 : 1.772	FSO 8309 A	- 1 : 1.415

CTI TF7010AMP 1211-1

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<b>Power Take Offs</b>		Ref. TF7011AMP
Relation 1 : 1,56		
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Sense of rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7011AMPS or TF7011AMPC  
 1 – Flange  
 2 – Bearing  
 3 – Circlip  
 4 – Adapter shaft VK7002  
 5 – Adapter sleeve  
 6 – Adapter washer  
 7 – TF4035AMP

**(Dimensions in mm)**

Main Data			
<b>Continuous Torque (Nm)</b>		<b>400</b>	
<b>Intermittent Torque (Nm)</b>		<b>500</b>	
<b>Power (at 1000 r.p.m)</b>		<b>55 C.V. / 40 Kw</b>	
<b>Mounting Position</b>		<b>Rear</b>	
<b>Pump Rotation</b>		<b>Right Hand</b>	
<b>Weight (Kg)</b>		<b>13.5</b>	
<b>PTO internal ratio</b>		<b>1:1,56</b>	
<b>Indicative ratio from motor to PTO's output</b>			
5109 DT	- 1 : 1.106	FS 8209 A	- 1 : 1.276
5109 OD	- 1 : 1.462	FSO 8209 A	- 1 : 1.276
6109 DT	- 1 : 1.194	FS 8309 A	- 1 : 1.276
6109 OD	- 1 : 1.598	FSO 8309 A	- 1 : 1.276

CTI TF7011AMP 1211-1

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<b>Power Take Offs</b> Relation 1 : 1,35		Ref. TF7012AMP
<b>EATON</b>	FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309	

To apply with Gear Pumps or with Piston Pumps

### Main Dimensions

A – Air connection  
 B – Sense of rotation  
 C – Option: Electric sensor with mechanical driving Ref. TF7012AMPS or TF7012AMPC  
 1 – Flange  
 2 – Bearing  
 3 – Circlip  
 4 – Adapter shaft VK7002  
 5 – Adapter sleeve  
 6 – Adapter washer  
 7 – TF4036AMP

**(Dimensions in mm)**

Main Data			
<b>Continuous Torque (Nm)</b>		<b>450</b>	
<b>Intermittent Torque (Nm)</b>		<b>500</b>	
<b>Power (at 1000 r.p.m)</b>		<b>62 C.V. / 46 Kw</b>	
<b>Mounting Position</b>		<b>Rear</b>	
<b>Pump Rotation</b>		<b>Right Hand</b>	
<b>Weight (Kg)</b>		<b>13.5</b>	
<b>PTO internal ratio</b>		<b>1:1,35</b>	
<b>Indicative ratio from motor to PTO's output</b>			
5109 DT	- 1 : 0.957	FS 8209 A	- 1 : 1.104
5109 OD	- 1 : 1.265	FSO 8209 A	- 1 : 1.104
6109 DT	- 1 : 1.033	FS 8309 A	- 1 : 1.104
6109 OD	- 1 : 1.383	FSO 8309 A	- 1 : 1.104

CTI TF7012AMP 1211-1

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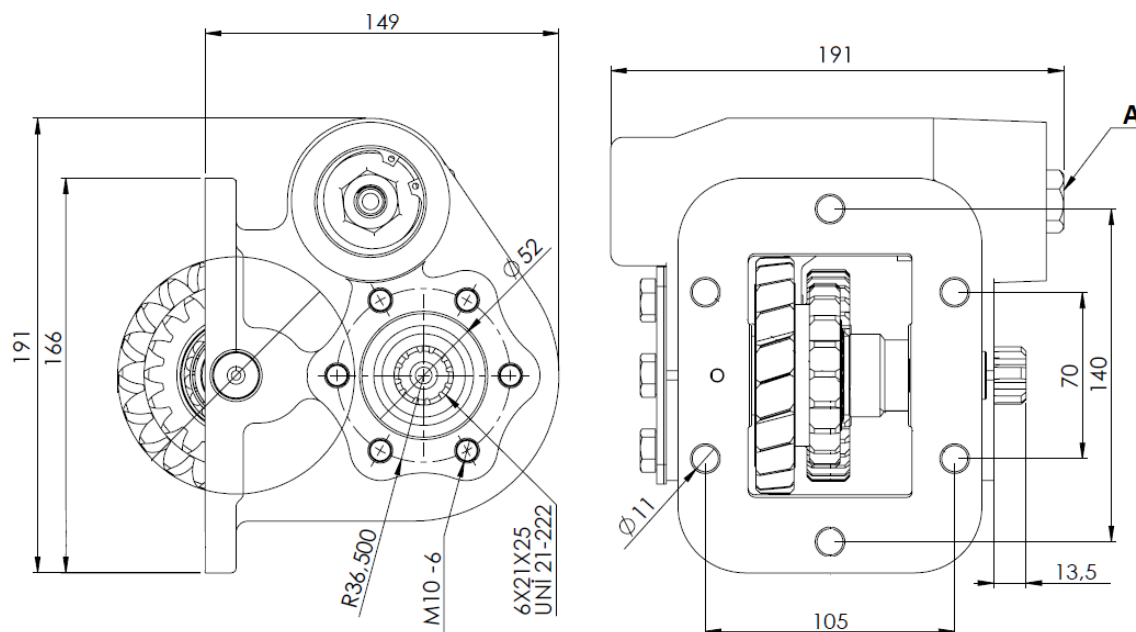
## Power Take Offs

Ref. TF7016P

**EATON**

FS-6306A ; FS-5306A ; UNI ; Pneumatic Control

### Main Dimensions



A – Air connection 1/4" BSP

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 cv / 32 kW</b>
<b>Mounting Position</b>	<b>Right</b>
<b>Pump Rotation</b>	<b>Left Hand</b>
<b>Weight (Kg)</b>	<b>11</b>
<b>PTO internal ratio</b>	<b>1:0,90</b>
<b>Indicative ratio from motor to PTO's output</b>	

FS-6306A / FS-5306A

1:0,90

CTI TF7016P 1505-0

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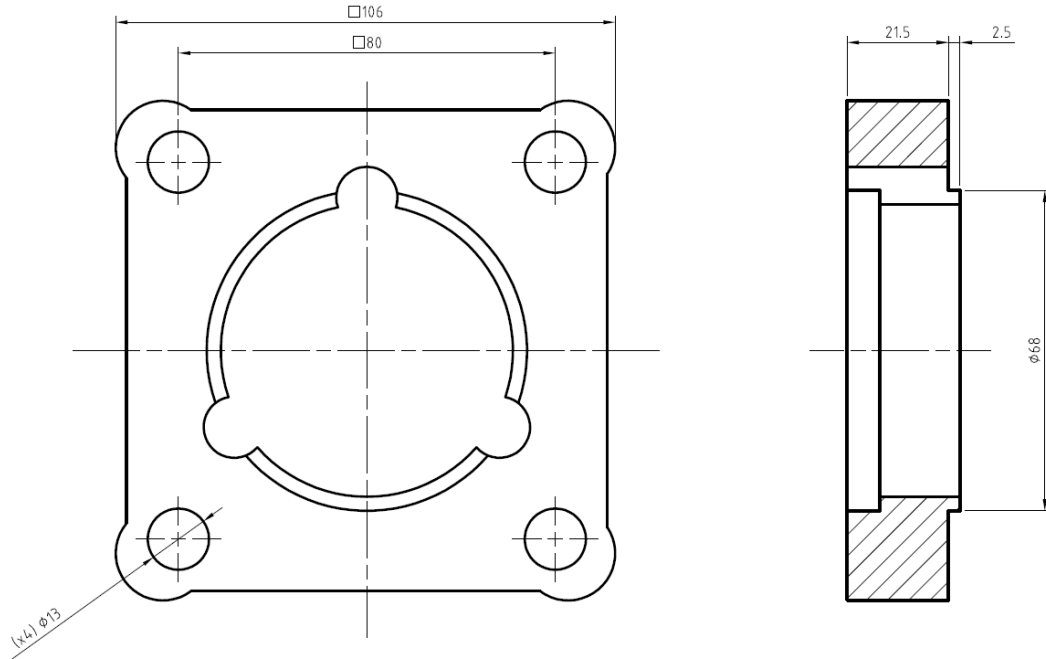


# ADAPTER KIT TO POWER TAKE OFFS EATON

FS 4106 ; FSO 4106 ; FS 5206 ; FSO 5206 ; FS 6106

Ref. VK7001

## Main Dimensions



(Dimensions in mm)

## Main Data

Weight (kg)

0.37

### KIT VK7001:

- 2 gaskets

CTI VK7001 1309-0

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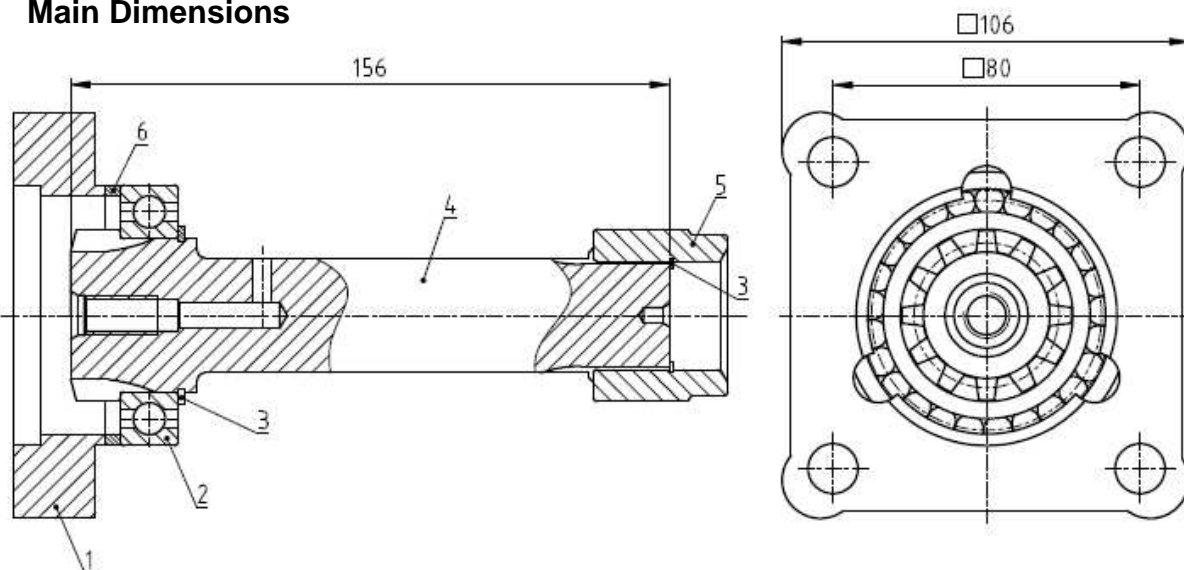


## ADAPTER KIT TO POWER TAKE OFFS EATON

Ref. VK7002AM

FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 ;  
FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309

### Main Dimensions



- 1 – Flange
- 2 – Bearing
- 3 – Circlip
- 4 – Adapter shaft VK7002
- 5 – Adapter sleeve
- 6 – Adapter washer

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Weight (Kg)</b>	<b>2.5</b>
<b>Engine-Kit adapter ratio</b>	

5109 DT	- 1 : 0.709	FS 8209 A	- 1 : 0.818
5109 OD	- 1 : 0.937	FSO 8209 A	- 1 : 0.818
6109 DT	- 1 : 0.765	FS 8309 A	- 1 : 0.818
6109 OD	- 1 : 1.024	FSO 8309 A	- 1 : 0.818

#### Note :

For getting the correct ratio is necessary to multiply the above mentioned ratio by the internal ratio in all S6-90 releases.

#### Example:

Gearbox 5109 DT Adapter Kit + ZF S6-90 (Ref. TF4002AMP) Internal Ratio 1:1.32

Final ratio: - 1 : 0.936 (0.709 x 1.32 = 0.936)

#### KIT Studs:

KIT VK7002AM for PTO (ratio 1:1.32)

- 2 stud M12x113
- 2 stud M12x150
- 4 nut M12
- 4 washer
- 2 jute ZF

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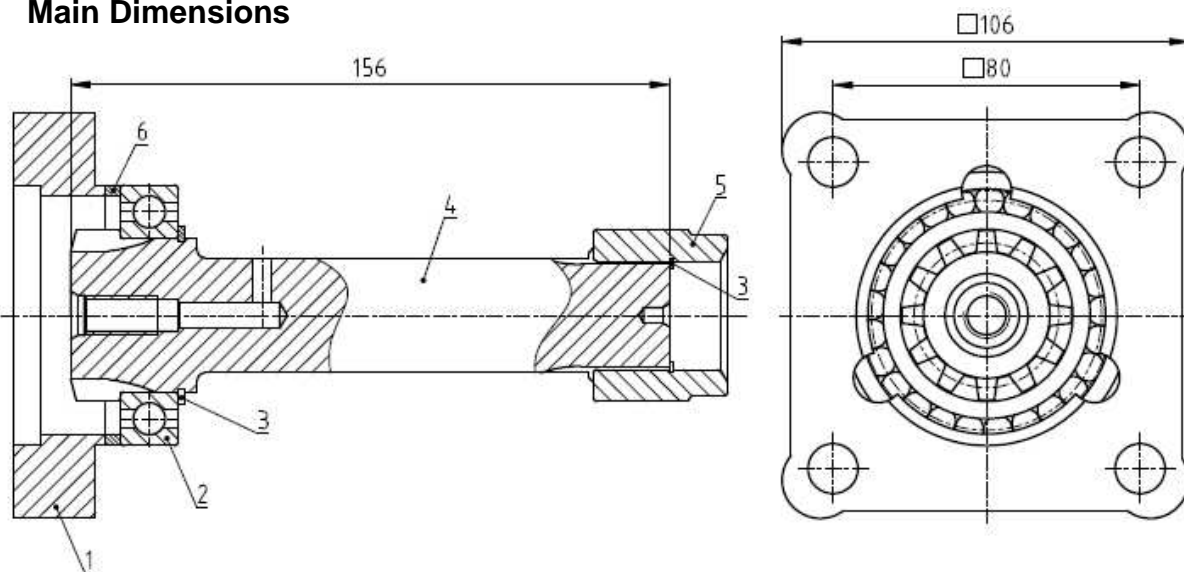


## ADAPTER KIT TO POWER TAKE OFFS EATON

Ref. VK7002S

FS 5109 ; FSO 5109 ; FS 6109 ; FSO 6109 ;  
FS 8209 ; FSO 8209 ; FS 8309 ; FSO 8309

### Main Dimensions



- 1 – Flange
- 2 – Bearing
- 3 – Circlip
- 4 – Adapter shaft VK7002
- 5 – Adapter sleeve
- 6 – Adapter washer

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 r.p.m)</b>	<b>42 C.V. / 32 Kw</b>
<b>Weight (Kg)</b>	<b>2.5</b>
<b>Engine-Kit adapter ratio</b>	

5109 DT	- 1 : 0.709	FS 8209 A	- 1 : 0.818
5109 OD	- 1 : 0.937	FSO 8209 A	- 1 : 0.818
6109 DT	- 1 : 0.765	FS 8309 A	- 1 : 0.818
6109 OD	- 1 : 1.024	FSO 8309 A	- 1 : 0.818

#### **KIT Studs :**

KIT VK7002S for PTO (ratio 1:1)

- 4 stud M12x135
- 4 nut M12
- 4 washer
- 2 jute ZF

CTI VK7002S 0812-1

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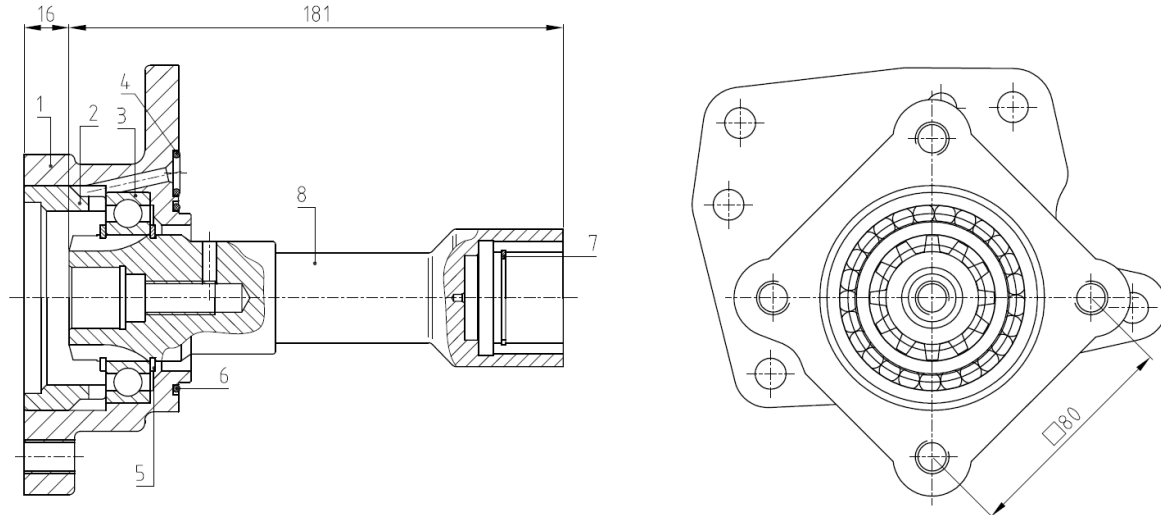


## ADAPTER KIT TO POWER TAKE OFF'S EATON

Ref. VK7003

RTS 12316 ; RTS 15316 ; RTS 17316 ;  
RTSO 12316A ; RTSO 15316A ; RTSO 17316A

### Main Dimensions



- 1 – Flange
- 2 – Spacer
- 3 – Bearing
- 4 – O'ring
- 5 – Circlip
- 6 – O'ring
- 7 – Circlip
- 8 – Adapter shaft

(Dimensions in mm)

### Main Data

<b>Continuous Torque (Nm)</b>	<b>300</b>
<b>Intermittent Torque (Nm)</b>	<b>420</b>
<b>Power (at 1000 rpm)</b>	<b>42 cv / 32 kW</b>
<b>Weight (Kg)</b>	<b>4.2</b>
<b>Indicative ratio from motor to kit adaptor</b>	
RTS 12316, 15316, 17316	High: .- 1 : 0.770      Normal: .- 1 : 0.629
RTSO 12316A, 15316A, 17316A	High: .- 1 : 0.920      Normal: .- 1 : 0.770

CTI VK7003 1605-0

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