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Special Duty Vehicles - technical Distribution

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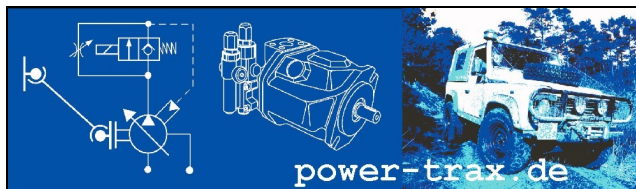
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Hydraulic Systems and Custom Solutions

for all 4x4 and utility vehicles

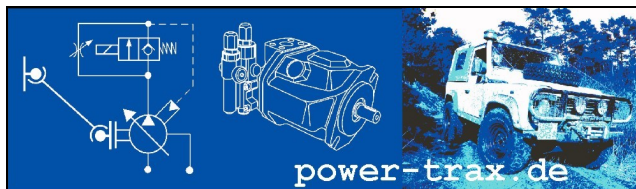


2018-2019 Catalogue

All prices net, excl. VAT - General terms and conditions of business apply

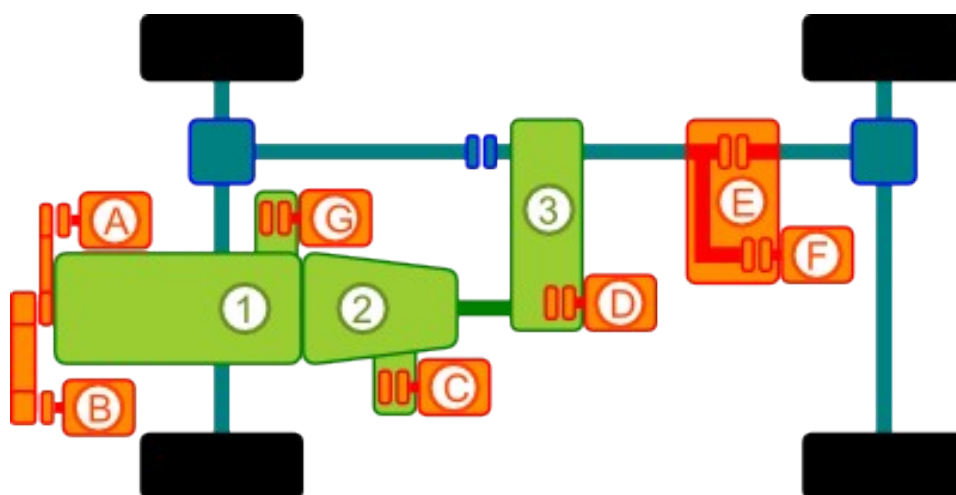
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Basics on PTO Drivetrain Concepts

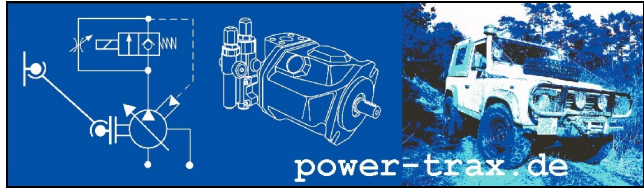
Here we have some basic introduction in PTO concepts.



Pic 1: PTO-Variants
1: Engine - 2: Gearbox - 3: Transfer Gearbox

Depending on your vehicle several variants of PTO installations are possible.

Variant	Details	Power
A	Belt driven PTO, electromagnetic or mechanical clutch. Uses stock beltdrive. Requires mounting space at engine. PTO can be used during driving.	7-10kW
B	Tooth belt driven PTO, mechanical clutch. Requires additional beltdrive. Requires extended mounting space at engine. PTO can be used during driving.	to 30kW
C	Gearbox coupled PTO, mechanical clutch. Gearbox needs to be prepared or expandable for PTO. PTO can partially be used during driving.	to 460kW
D	Transfer gearbox coupled PTO, mechanical clutch. Gearbox needs to be prepared or expandable for PTO. PTO can only be used stationary.	to 76kW
E/F	Driveshaft coupled PTO, mechanical clutch. Fits all RWD vehicles and vehicles with selectable 4WD. PTO can only be used stationary.	22 to 136kW
G	Sandwich-PTO between engine and clutch. Allows for full engine power also during driving operations	155kW +

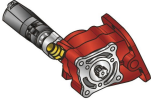
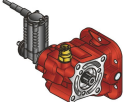


IVECO Massif PTOs & Hydraulic Systems Crankshaft coupled (system 'C')

Complete kits fitting IVECO Massif 3.0 & Daily 4x4 as well as Bremach T-Rex with ZF gearbox.

These kits are suitable to operate dumpers, hydraulic winches, generators, compressors and all other hydraulic equipment.

We do offer a comprehensive service regarding design and integration of hydraulic systems - please get in contact with us accordingly!

ID#	Details	Price
	Kit IVECO Massif 3.0 / Daily 4x4 / Bremach T-Rex - 18kW <ul style="list-style-type: none"> ● PTO, electronically operated ● Pump 36ccm / 200bar / 50lpm ● Power Control Unit ● 1500 Upm: 50lpm / 18.8kW ● 3000 Upm: 100lpm / 37kW (intermittent) ● ECU with panel ● crankshaft coupled <p>Requires tank, valves and hoses. Supports and hoses need to be modified.</p>	1480,- EUR
	Kit IVECO Massif 3.0 / Daily 4x4 / Bremach T-Rex - 29kW <ul style="list-style-type: none"> ● PTO, electronically operated ● Pump 57ccm / 200bar ● Power Control Unit ● 1500 Upm: 80lpm / 29.4kW ● 3000 Upm: 160lpm / 58kW (intermittent) ● ECU with panel ● crankshaft coupled <p>Requires tank, valves and hoses. Supports and hoses need to be modified.</p>	1560,- EUR

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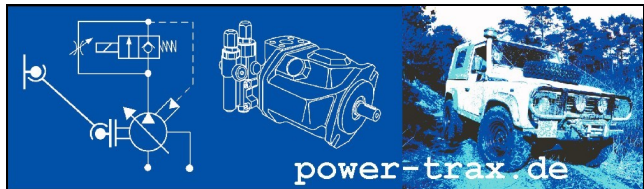
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Landrover Defender & IVECO Massif PTOs & Hydraulic Systems - Gearbox coupled (system 'D')

PTO-hydraulic-systems for LandRover Defender 90 and 110, IVECO Massif and Daily 4x4 plus Santana PS-10. Fits LT230-transfercase.

These kits are suitable to operate dumpers, hydraulic winches, generators, compressors and all other hydraulic equipment.

We do offer a comprehensive service regarding design and integration of hydraulic systems - please get in contact with us accordingly!

ID#	Details	Price
	<p>PTO 38kW and 30kW - air or manual operated clutch</p> <ul style="list-style-type: none"> ● air operated PTO clutch - convenient installation! ● manual operation available ● Gearbox coupled - fits LT230-transfer ● rotation enginewise: 38,2kW @ 1000 RPM, axis inline ● rotation anti-enginewise: 30,5kW @ 1000 RPM, ~85mm axis offset, Ratio 1.5x ● flanges ISO 4-bolt and UNI (SAE per request) ● driveshaft flange also available ● max. 2000 RPM, thus doubling the output power! <p>Requires tank, valves and hoses. May require modification of exhaust support. 9- oder 18-splined gearbox shaft required!</p>	
L/R-CCW-ISO	PTO 38,2kW ISO 4-bolt, 1x	888,- EUR
L/R-CCW-UNI	PTO 38,2kW UNI, 1x	995,- EUR
L/R-CW-ISO	PTO 30,5kW ISO 4-bolt, 1.2x	1220,- EUR
L/R-CW-UNI	PTO 30,5kW UNI, 1.2x	1322,- EUR
	Splined shaft, requires hand-in of original good part	540,- EUR

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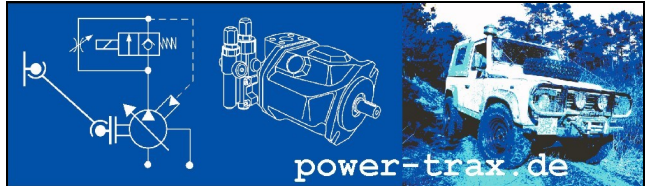
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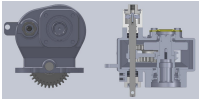



Toyota LandCruiser Hydraulic Systems (System 'D')

Basis-Sets für Toyota LandCruiser, bestehend aus PTO, Pumpe und Betätigung.

These kits are suitable to operate dumpers, hydraulic winches, generators, compressors and all other hydraulic equipment.

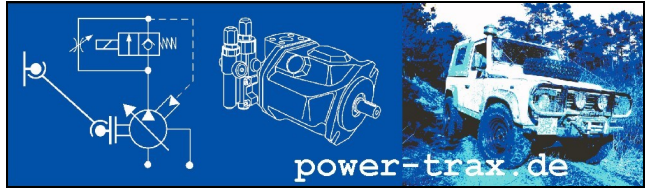
We do offer a comprehensive service regarding design and integration of hydraulic systems - please get in contact with us accordingly!

ID#	Details	Price
L/C 36kW  	Toyota LandCruiser PTO 36kW <ul style="list-style-type: none"> ● PTO for 6-bolt Toyota J4/J6/J7 transfer case flange, symmetrical bolt pattern (ca. 1980-2016 vehicles, no V8 diesel or J7 gasoline engines) ● transfer case coupled (scheme D) ● mechanical clutch ● 18kW @ 1.000RPM, 36kW @ 2.000RPM ● 172Nm ● Ratio 1:1.1 (speed increase) ● Aluminum casted housing, 13kg ● Standard: ISO 4-bolt-flange ● Optional: UNI-3-bolt-flange, driveshaft flange ● Optional: compressed air clutch operation ● Option: alternative power output rear <p>Requires tank, valves, pump and hoses.</p> <p>We recommend a bent-axis piston pump KO17F-type from BOSCH-REXROTH</p>	940,- EUR
	Bowden-type manual actuator	140,- EUR

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Truck PTOs and Hydraulic Systems

Of course we are also able to supply a full range of PTOs and hydraulic pumps and systems suitable for all major brands of medium and heavy trucks and truck gearboxes:

	Details
Vehicle or Gearbox brand	<ul style="list-style-type: none"> ● Mercedes-Benz ● IVECO ● Volvo ● Scania ● Renault ● DAF ● ZF ● Allison ● Aisin ● Turner, Spicer, DANA, New Process ● EATON-HEMA, EATON-FULLER ● Bedford-Leyland ● Isuzu, Isuzu-Hino ● Mitsubishi-Hyundai ● Kia, Mazda, Daewoo, Daihatsu, Toyota ● FIAT ● International (IHC) ● MACK ● Kamaz - URAL - MAT ● 'Universal' Split PTO 
Nebenantrieb	<ul style="list-style-type: none"> ● Single output ● Dual or multiple output ● different drive ratios ● pump or shaft mounts ● Driveshaft PTO split-gearboxes - suitable for vehicles w/o PTO-opening ● operated electrically, manual or pneumatic ● relocating gearboxes ● Crankshaft coupled up to 2 x 230kW output!
Hydraulikpumpen	<ul style="list-style-type: none"> ● gear pumps ● axial- and radial-piston pumps ● variable pumps ● electronically controlled pumps ● multiple pumps

Please contact us with full information regarding application, vehicle, engine and gearbox type and manufacturer.

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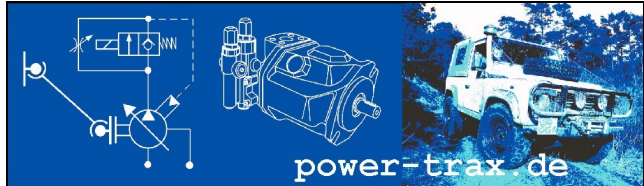
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DYNA-PAX universal Hydraulik Pumps for light trucks and 4x4 (System A/B)

For light trucks, 4x4, SUVs and Pickups we did develop a line of modular configurable, crankshaft-driven power blocks named DYNA-PAX®. These units offer hydraulic or pneumatic power for almost any vehicle.

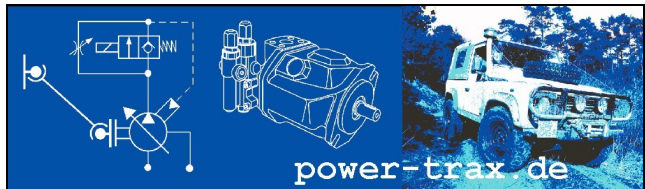
	Details
Vehicles (selection)	<ul style="list-style-type: none"> ● Mercedes-Benz <ul style="list-style-type: none"> ○ G- and GL-4x4 and SUVs ○ ML-Klasse ● Toyota <ul style="list-style-type: none"> ○ HiLux ○ LandCruiser ○ RAV-4 ● Mitsubishi <ul style="list-style-type: none"> ○ L200, Pickup ○ Pajero ● Jeep ● Ford <ul style="list-style-type: none"> ○ F-Series ○ Explorer ● Opel / Isuzu ● VW <ul style="list-style-type: none"> ○ Taro, T4 etc. ● Suzuki <ul style="list-style-type: none"> ○ Jimny, Samurai, Vitara
Hydraulics and energy systems	<ul style="list-style-type: none"> ● Crankshaft synchronous operation ● gear pumps ● compressors ● magnetic / electrical clutches ● mechanical clutches ● direct drive

To set up a quotation we require information regarding vehicle, type, engine and gearbox and system requirements.

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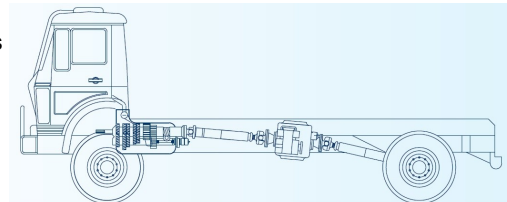
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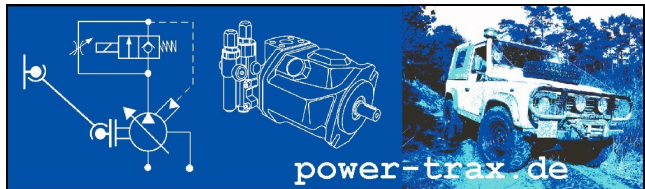


Split-Shaft-PTOs for light, medium & heavy trucks, 4x4 and ships (System E/F)

The split shaft PTOs are available for almost all light-, medium- and heavy-duty utility vehicles, trucks , 4x4s and ships as well . They offer a whole range of variations and configurations for mobile power generation.

	Description
Function	<p>A Split-Shaft-PTO is an additional gearbox being fitted into the vehicle or ship. This gearbox splits the input power from the engine / main gearbox and splits it into power transferred further to the axle(s) or screw and a part being provided to the PTO(s). The gearbox mounts inbetween the existing driveshaft. Therefore the shaft is being replaced by two halves connecting to main gearbox, split-shaft-PTO-gearbox and axle(s). An integrated clutch individually operates drivetrain and PTO.</p> <p>Power classes driveshaft / PTO / connections</p> <ul style="list-style-type: none"> ● 2.100Nm / 250Nm - 22kW / 4fold ● 4.000Nm / 750Nm - 71kW / 1fold ● 8.000Nm / 1.300Nm - 136kW / 2fold ● 20.000Nm / 1.300Nm - 136kW / 2fold & 4fold ● 24.000Nm / 1.300Nm - 110kW / 2+1fold <p>PTO-connections</p> <ul style="list-style-type: none"> ● pump or driveshaft flange ● various oriented power outlets, multiple outlets & combinations <p>Operation</p> <ul style="list-style-type: none"> ● pneumatically or mechanically <p>Vehicles</p> <ul style="list-style-type: none"> ● RWD with propshaft ● AWD / 4x4 with rear propshaft and selectable 4x4 or 6x6 (not applicable for permanent-4x4-vehicles and stationary applications) ● Ships with shaft-driven screw
Sample Vehicles	<ul style="list-style-type: none"> ● Mercedes-Benz <ul style="list-style-type: none"> ○ G- and GL-4x4s ○ Trucks (Actros, Axor, Atego etc.) ○ Sprinter ● Toyota HiLux, LandCruiser ● Mitsubishi L200, Pickup, Pajero ● Nissan Pickup, Patrol ● Volvo trucks ● Ford Transit & Utes ● VW Utes ● IVECO Utes & trucks ● Renault trucks ● FIAT Utes





Sandwich-PTO für Utility Vehicles (System G)

Beschreibung	
Funktion	<p>These extremely powerful units are mounted sandwich-style between engine and bellhousing. Your gearbox and drivetrain will be relocated a certain distance to the aft.</p> <p>A sandwich PTO allows for high power output up to 155kW also whilst driving the vehicle which allows applications like street cleaning vehicles.</p> <p>Power rating driveshaft / PTO flange</p> <ul style="list-style-type: none"> ● bis 155kW <p>Power connections</p> <ul style="list-style-type: none"> ● Pump flange ● Driveshaft <p>Actuator</p> <ul style="list-style-type: none"> ● pneumatic
Vehicles	<ul style="list-style-type: none"> ● Isuzu FVR23 (MAL 6S) ● Isuzu FTR34 (MZW 6P - Motor 6HK1-TN) ● Isuzu FTR 33 (MLD 6A) ● Isuzu NQR 71P (MYY5t / MOY 9F) ● Isuzu FZV 34 (ZF9S - 1115 TO) ● Isuzu FXZ 360 (ZF9S - 1315 TO) ● Mitsubishi Fuso (M8 S2)

