PRODUCT GUIDE

POWER TAKE-OFF AND HYDRAULIC COMPONENTS

MUNCIE

Muncie Power Products, Inc. is a company that has a rich history with the industry experience and product knowledge to prove it. Since the company was founded in 1935, Muncie Power Products has always taken great pride in providing unparalleled service to each and every customer. In collaboration with other companies within the Interpump Group, Muncie Power Products has the ability to provide access to nearly every major component in a hydraulic system with the dependability you've come to expect from Muncie Power Products.

At Muncie Power Products, it's about more than building hydraulic components; it's about building trust.

MUNCIE®

WE BUILD
TRUST.

A MEMBER OF THE

INTERPUMP GROUP

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CUSTOMER SERVICE
WHERE EVERY CALL IS IMPORTANT

In a day and age where many companies have opted to outsource or automate customer service – Muncie Power Products continues to provide in-house, one-on-one assistance to each and every customer. With many years of combined experience, Muncie Power's team offers industry leading customer service for its full line of products from power take-offs to hydraulic components.

Connect with the customer service team at munciepower.com/contact or give them a call at 800-367-7867.

CREATED FOR YOU
MUNCIEPOWER.COM

Muncie Power Products' website features a responsive layout so that whether you're on your desktop, tablet or mobile device, the site is user friendly. Created for the user experience, the website features dropdown menus for product categories, applicable markets, consumer support and company materials along with modules added to the homepage for quick and easy access to product literature, available training programs and product tools. With continual improvements and updates, Muncie Power Products' website continues to evolve to best provide resources and information to help industry professionals succeed.

RESOURCES AVAILABLE

M-Power Specification Software: Designed to assist you with product configurations to find the product you need, M-Power Specification Software – an online, application tool – takes you through a step-by-step process to spec out a product. Giving you the ability to view pricing, crossover products, save product searches and more at your own convenience, M-Power is continually updated to reflect new products and features the most up-to-date, online version of Muncie Power's popular PTO Quick Reference Catalog.

M-POWER® SPECIFICATION SOFTWARE

Muncie Product and Application School: Muncie Power Products offers in-person training classes to its customers at both its headquarters and manufacturing division at various times throughout the year. Along with learning about the company's products, you'll learn to use Muncie Power's web-based application tool – M-Power Specification Software – and the PTO Quick Reference Catalog to specify correct Muncie Power components for any mobile hydraulic application.

Online Training: Muncie Power Products' online, power take-off and mobile hydraulic system training program is designed to provide information aligned with that provided in Muncie Power's long-standing Muncie Product and Application School. Available in English and Spanish, the online program covers Muncie Power's complete product line and is available for free. Complete the program anytime, anywhere, at your convenience and receive a certificate from Muncie Power Products.

WARRANTY OR TERMS OF SERVICE, SALE OR PURCHASE QUESTIONS?

Muncie Power Products' warranty information and terms of service, sale and purchase are available anytime online at munciepower.com.

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MM17-01 (Rev. 05-18)

POWER TAKE-OFFS

Muncie Power Products offers a wide breadth of power take-offs featuring various bolt, shift, mounting and application-specific options to meet your product needs.

6 AND 8 BOLT MECHANICAL SHIFT

Traditionally used on manual transmissions, mechanical shift power take-offs are engaged as gears slide into and mesh with one another. The mechanical shift PTO is commonly started via lever, cable or air pressure.

FEATURED

TG SERIES

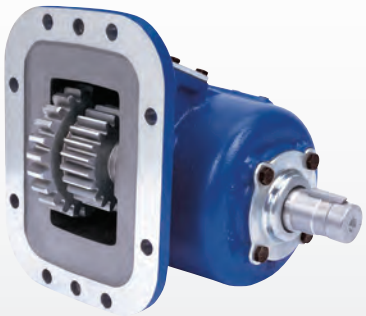
- Versatile PTO with 10 speed ratios for all popular transmissions
- Lightweight, reduced noise and superior heat dissipation

MAX TORQUE	
INTERMITTENT:	285 lbs.ft. (386 Nm)
CONTINUOUS:	200 lbs.ft. (270 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	54 HP (40 kW)
CONTINUOUS:	38 HP (28 kW)
APPROX. WEIGHT	22 lbs. (10.0 Kg.)

8405/6A SERIES

- 8-bolt mount for Eaton and Mack transmissions
- Robust design provides a rigid structure for high vibration environments

MAX TORQUE	
INTERMITTENT:	225 lbs.ft. (312 Nm)
CONTINUOUS:	161 lbs.ft. (218 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	44 HP (33 kW)
CONTINUOUS:	31 HP (23 kW)
APPROX. WEIGHT	37 lbs. (16.8 Kg.)



SH SERIES

- Integral air shift PTO
- 5 speed ratios and 17 input gear pitches

MAX TORQUE	
INTERMITTENT:	400 lbs.ft. (542 Nm)
CONTINUOUS:	280 lbs.ft. (397 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	76 HP (57 kW)
CONTINUOUS:	53 HP (40 kW)
APPROX. WEIGHT	35 lbs. (15.9 Kg.)

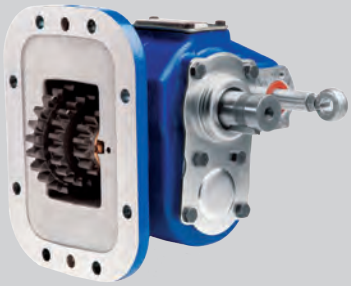
82 SERIES

- Cast iron housing, lever or air shift and, optional single- or dual-pump mounts
- Designed for use with high-torque mechanical equipment

MAX TORQUE	
INTERMITTENT:	500 lbs.ft. (678 Nm)
CONTINUOUS:	350 lbs.ft. (475 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	95 HP (71 kW)
CONTINUOUS:	67 HP (50 kW)
APPROX. WEIGHT	85 lbs. (38.6 Kg.)

REVERSIBLE PTOS

The RL Series power take-off offers one speed forward and one speed reverse. Ideal for driving mechanical winches or matching driven equipment rotational needs, this PTO features constant mesh input gears that protect the transmission gears from damage due to improper shift procedures.



RL SERIES

- RL Series comes in both a 6- and 8-bolt unit with an extra-low output ratio gearbox and air shift option

MAX TORQUE	
INTERMITTENT ONLY:	200 lbs.ft. (271 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT ONLY:	38 HP (28 kW)
APPROX. WEIGHT	25 lbs. (11.3 Kg.)

6 AND 8 BOLT CLUTCH SHIFT

Clutch shift power take-offs are the most common type of PTO found on automatic transmissions. Unlike the mechanical shift PTO, the clutch shift power take-off uses clutch disks and friction plates to engage.

FEATURED

CS6/8 SERIES

- Designed for Allison 1000 and 2000 Series automatic transmissions as well as many current manual transmissions offering direct-mount pump options
- Patented, Muncie Power drag break prevents shaft rotation in "off" mode
- Direct-mount flanges with ability to rotate allow the pump to be positioned for maximum clearance

MAX TORQUE	
INTERMITTENT:	300 lbs.ft. (407 Nm)
CONTINUOUS:	210 lbs.ft. (285 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	57 HP (43 kW)
CONTINUOUS:	40 HP (30 kW)
APPROX. WEIGHT	47 lbs. (21.3 Kg.)

FA6B SERIES

- Angular housing moves the clutch-shifted output below chassis obstructions for either driveshaft applications or direct mount pumps
- Advanced gear design provides reduced noise
- Versatile pump mounting with options for remote and direct mount models
- Easy plug-in installation with preconfigured wiring harness

MAX TORQUE	
INTERMITTENT:	127 lbs.ft. (172.2 Nm)
CONTINUOUS:	89 lbs.ft. (120.7 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	25 HP (19 kW)
CONTINUOUS:	17 HP (13 kW)
APPROX. WEIGHT	34 lbs. (15.4 Kg.)

CB SERIES

- Provides option to have a high-torque brake assembly added to the CS Series PTO
- Features a second, multi-disk assembly built into the PTO output shaft to provide a safe means to eliminate shaft rotation

MAX TORQUE	
INTERMITTENT:	220 lbs.ft. (298 Nm)
CONTINUOUS:	154 lbs.ft. (209 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	42 HP (31 kW)
CONTINUOUS:	29 HP (22 kW)
APPROX. WEIGHT	48 lbs. (21.8 Kg.)

GEAR BOX

Muncie Power Products offers gear box options to meet the mounting needs for crankshaft-driven power take-offs, driveshaft-driven components and application clearance.

CSGB 200-125

- Lowers the output shaft speed up to half of the typical output shaft speed of the CS6 PTO
- Specifically designed to fit and operate on the Allison 1000 or 2000 Series transmissions

MAX TORQUE	
INTERMITTENT:	220 lbs.ft. (298 Nm)
CONTINUOUS:	154 lbs.ft. (209 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	42 HP (31 kW)
CONTINUOUS:	29 HP (22 kW)
APPROX. WEIGHT*	10 lbs. (4.5 Kg.)

The PTO shown above is not included with the CSGB.

GEAR ADAPTERS

Gear adapters mount between the vehicle's transmission and the power take-off, creating space between the PTO and transmission case. Adapters are most commonly used to change the PTO output shaft's direction of rotation, relocating the output shaft to improve clearance for a driveshaft or direct coupled pump. Using a gear adapter, the PTO shaft rotation can be changed to match that of the driven equipment. Standard and nonstandard bolt patterns are available for Muncie Power's gear adapters to match SAE standard PTOs to nonstandard transmissions. This includes adapters in SAE 6-bolt models with 30-, 45- and 55-degree offsets to clear interference on Eaton transmissions.

10 BOLT CLUTCH SHIFT

Compatible with Allison and Caterpillar transmissions, Muncie Power Products' line of 10-bolt, clutch shift power take-offs is designed for today's equipment requirements.

Available with the Muncie Start™

TITAN™ MC1 SERIES

- A medium-duty, clutch shift power take-off replacing the CS24/25 and HS24 Series
- The Titan MC1 power take-off has raised the bar on the life expectancy and durability of truck-mounted PTOs

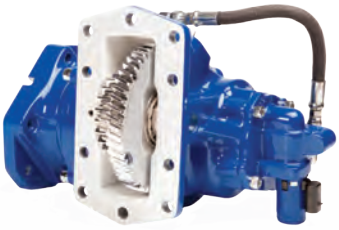
MAX TORQUE INTER/CONTINUOUS:	415 lbs.ft. (563 Nm)
MAX HP (@ 1,000 RPM) INTER/CONTINUOUS:	79 HP (59 kW)
APPROX. WEIGHT	47.2 lbs. (21.4 Kg.)

(See page 9 for Muncie Start specifications.)

CS24/25 SERIES

- Engaged by a direct-mount solenoid, which activates an internal, wet-clutch pack
- Patented, Muncie Power drag brake prevents shaft rotation in "off" mode

MAX TORQUE	
INTERMITTENT:	325 lbs.ft. (440 Nm)
CONTINUOUS:	228 lbs.ft. (308 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	62 HP (46.2 kW)
CONTINUOUS:	43 HP (32.0 kW)
APPROX. WEIGHT	52 lbs. (23.6 Kg.)



HS24 SERIES

- Features a sculptured housing designed to clear mounting obstructions
- Direct mount solenoid for a simple installation

MAX TORQUE	
INTERMITTENT:	325 lbs.ft. (440 Nm)
CONTINUOUS:	228 lbs.ft. (308 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	62 HP (46.2 kW)
CONTINUOUS:	43 HP (32 kW)
APPROX. WEIGHT	52 lbs. (23.6 Kg.)

CS10/11 SERIES

- Direct-mount flanges with ability to rotate allow pump to be positioned for maximum clearance
- PTO can be mounted shaft high or low on either side of the transmission

MAX TORQUE	
INTERMITTENT:	500 lbs.ft. (678 Nm)
CONTINUOUS:	350 lbs.ft. (475 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	95 HP (71 kW)
CONTINUOUS:	67 HP (50 kW)
APPROX. WEIGHT	68 lbs. (30.9 Kg.)

CS40/41 SERIES

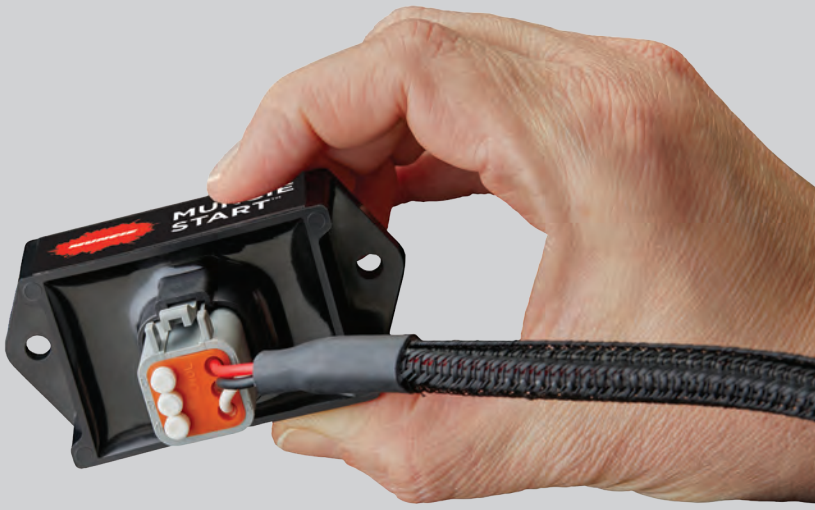
- Precision-ground gears allow for high-torque capacity with quiet operation
- Extra-large bearings and components result in high torque and durability

MAX TORQUE		
	INTERMITTENT:	600 lbs.ft. (813 Nm)
	CONTINUOUS:	420 lbs.ft. (569 Nm)
MAX HP (@ 1,000 RPM)		
	INTERMITTENT:	114 HP (85 kW)
	CONTINUOUS:	80 HP (60 kW)
APPROX. WEIGHT		69 lbs. (31.3 Kg.)

MUNCIE START™

STOP THE TORQUE SPIKE

The Muncie Start – a new electronically controlled, modulated clutch engagement system from Muncie Power Products – eliminates torque spikes through the power take-off, truck drivetrain and mounted auxiliary equipment upon startup for high-inertia loads. Allowing for a smooth engagement of the power take-off, Muncie Start increases the life of the PTO and driven mechanical components.



APPLICABLE PTOS

FR6Q SERIES

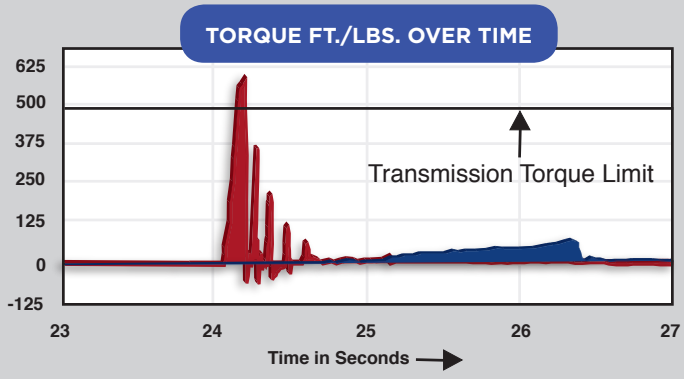
Use special feature option:

6 – **Muncie Start™** Stationary or Mobile
7 – **Muncie Start™** Stationary and Mobile (only available on 6, F and D shift types)

TITAN™ MC1 SERIES

Use shift code:

SX – **Muncie Start™** 12VDC Integral
SR – **Muncie Start™** 12VDC Remote Mount



10 BOLT CONSTANT DRIVE

Constant drive power take-offs do not have a shifting mechanism, but are always engaged. An alternative to front, driveshaft mounting a pump, Muncie Power's constant drive PTOs can be used on applications where the hydraulics are continually used.

CD05 SERIES

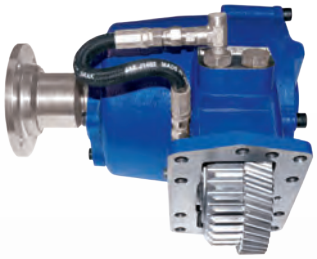
- Designed to fit tight mount applications like the Peterbilt 320, Autocar LCF and the Hino 338 chassis
- About 15% smaller than the CD10 without the loss of torque or horsepower

MAX TORQUE	
INTERMITTENT:	360 lbs.ft. (488 Nm)
CONTINUOUS:	252 lbs.ft. (342 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	68 HP (51 kW)
CONTINUOUS:	48 HP (36 kW)
APPROX. WEIGHT	39 lbs. (18 Kg.)

CD10 SERIES

- Functional alternative to front, crankshaft-driven, hydraulic pump applications
- Multi-position, direct-mount flanges allow pump to be positioned for maximum clearance

MAX TORQUE	
INTERMITTENT:	400 lbs.ft. (542 Nm)
CONTINUOUS:	280 lbs.ft. (379 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	76 HP (57 kW)
CONTINUOUS:	53 HP (40 kW)
APPROX. WEIGHT	39 lbs. (17.7 Kg.)



CD40 SERIES

- Designed for maximum output torque with quiet operation for live, engine-driven equipment
- 5 output shaft options with hydraulic pump adapters able to fully rotate

MAX TORQUE	
INTERMITTENT:	600 lbs.ft. (813 Nm)
CONTINUOUS:	420 lbs.ft. (569 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	114 HP (85 kW)
CONTINUOUS:	80 HP (60 kW)
APPROX. WEIGHT	65 lbs. (29.5 Kg.)

PTO SHAFT EXTENSIONS

EX DRIVE

The EX Drive was designed for the Allison 3000 and 4000 Series transmissions with a cooler or retarder that allows for large gear or piston pumps to be direct mounted. The EX Drive can be paired with the CD10, CS10/11, CS24/25, CS40/41 families and Titan MC1 power take-offs.

SHAFT EXTENSION

Muncie Power's patented PTO shaft extension is available for most Allison 3000 and 4000 Series transmissions. Installation has been made easier by moving the hydraulic pump mount to the rear of the transmission. Models are available for both clutch shift and constant drive Muncie Power Product's PTOs and are equipped with wet-spline couplings.

MAX TORQUE	
WITH CD10:	
INTERMITTENT	400 lbs.ft (542 Nm)
CONTINUOUS:	280 lbs.ft. (379 Nm)
WITH CS10/11:	
INTERMITTENT:	500 lbs.ft. (687 Nm)
CONTINUOUS:	350 lbs.ft. (475 Nm)
WITH CS24/25:	
INTERMITTENT:	325 lbs.ft. (440 Nm)
CONTINUOUS:	228 lbs.ft. (308 Nm)
WITH CS40/41:	
INTERMITTENT:	600 lbs.ft. (813 Nm)
CONTINUOUS:	430 lbs.ft. (569 Nm)
MAX HP (@ 1,000 RPM)	
WITH CD10:	76 HP (57 kW)
WITH CS10/11:	95 HP (71 kW)
WITH CS24/25:	62 HP (46 kW)
WITH CS40/41:	114 HP (85 kW)
APPROX. WEIGHT	42 lbs. (19.05 Kg)

NOTES FOR SHAFT EXTENSION:

1. Transmission must have rear support installed as supplied by the vehicle manufacturer.
2. Allison 4000 Series: ES not currently available for the 7 speed HD4700 transmission. Not currently available for any 4000 retarder or units with rear-mounted oil coolers.
3. All ES Kits are for shaft low PTO arrangements. "3" on left side and "1" on right side.

FORD APPLICATIONS

These power take-offs were designed to meet specifications for Ford automatic transmissions. Built for increased durability and simplified installation, the line features noise suppression technology, versatile pump mounting options and integral mobile or stationary functions.

Available with the Muncie Start™

FR6Q SERIES

- Fits Ford Super Duty trucks with Ford 6R140 transmission, primarily F-350-550 (may also be used on F-650/F-750)
- Noise abatement mechanism eliminates virtually all gear rattle noise

MAX TORQUE	
INTERMITTENT:	200 lbs.ft. (271 Nm)
CONTINUOUS:	140 lbs.ft. (190 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	39 HP (29 kW)
CONTINUOUS:	27 HP (20 kW)
APPROX. WEIGHT	35 lbs. (15.9 Kg.)

(See page 9 for Muncie Start specifications.)

FR3C SERIES

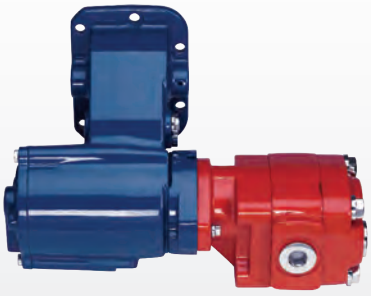
- Provides maximum torque available from the F-650 and F-750 with the Ford TorqShift transmission
- Keyed shaft output and incorporates integral mobile or stationary functions

MAX TORQUE	
INTERMITTENT:	237 lbs.ft. (321 Nm)
CONTINUOUS:	166 lbs.ft. (225 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	45 HP (34 kW)
CONTINUOUS:	32 HP (24 kW)
APPROX. WEIGHT	31 lbs. (14.1 Kg.)

FR67 SERIES

- Designed to fit the 5R110 Ford TorqShift automatic transmissions
- Solenoid-activated clutch shift for positive, no “gear clash” engagement

MAX TORQUE	
INTERMITTENT:	190 lbs.ft. (258 Nm)
CONTINUOUS:	133 lbs.ft. (181 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	36 HP (27 kW)
CONTINUOUS:	25 HP (19 kW)
APPROX. WEIGHT	34 lbs. (15.4 Kg.)



FA62 AND FR63

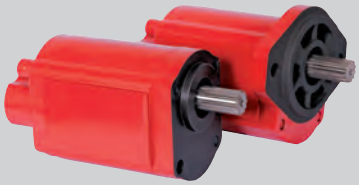
- FA62 (Ford 4R100) and FR63 (Ford 5R110) are designed for 2-wheel drive vehicles; the FA62 and FR63 available in both remote- and direct-mount pump models

MAX TORQUE	
INTERMITTENT:	
FA62	125 lbs.ft. (169 Nm)
FR63	150 lbs.ft. (203 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	
FR62	24 HP (22 kW)
FR63	36 HP (27 kW)
APPROX. WEIGHT	
FA62	28 lbs. (12.7 Kg.)
FR63	34 lbs. (15.4 Kg.)

FORD PUMP OPTIONS

F SERIES

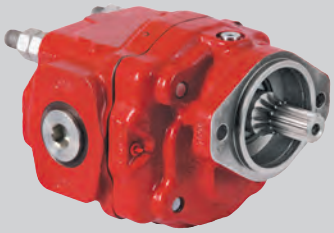
Ultimate power and performance in a small package best describes the F Series gear pump. The pressure-balanced bushing blocks and sleeve bearings provide both extra-long life and high performance. *(See page 16 for specifications.)*



W SERIES

The W Series, an Optimum Series gear pump/motor, features a robust design for long life and maintained performance. All standard "W" displacements are available for the FR6Q and FR66 "Q" mount standard SAE "A" 2-bolt mounting and a ⅞" - 13T splined shaft on F-650/F-750 applications. *(See page 18 for specifications.)*

Note: Use W Series pumps on F-650, F-750 chassis only.



H SERIES

The H Series pump rear cover allows for optimum compatibility with the FR6Q and FR66 "Q" mount applications. Enhanced design features include elimination of side ports and removal of nearly ½" of material from the suction side of the housing, providing increased clearance of the floorboard. All standard H Series displacements will be available for the FR6Q and FR66 "Q" mount applications and come standard with a SAE "A" 2-bolt mounting flange and ⅞" - 13T splined shaft.

(See page 16 for specifications.)

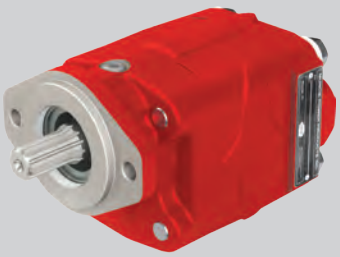
K SERIES

The K Series standard gear housing will be replaced with the S Series gear housing for use on the FR6Q and the FR66 "Q" mount applications. Elimination of side ports on the S Series gear housing significantly reduces the overall width of the pump, providing increased clearance of the floorboard.

6, 13 and 17 GPM K Series models are available for the FR6Q and FR66 "Q" mount applications due to the limited number of S Series displacements. Each unit comes standard with a SAE "A" 2-bolt mounting flange and ⅞" - 13T splined shaft.

(See page 16 for specifications.)

Note: Use K Series pumps on 4x2 chassis applications only.



SPLIT SHAFT PTOS

Split shaft power take-offs are designed to use the main, vehicle driveshaft as the input and provide multiple outputs for auxiliary power equipment. Muncie Power Products has split shaft PTOs with apertures to accept either 6- or 8-bolt power take-offs.

SS66 SERIES

- Provides 2, 6-bolt PTO apertures where none exist on the main transmission or where space limitations restrict access to accept various, common PTO series
- Engagement can be via air shift or heavy-duty, push-pull cable

MAX TORQUE	
THROUGHPUT:	2,900 lbs.ft. (4,000 Nm)
PTO DRIVE GEAR:	289 lbs.ft. (392 Nm)
MAX HP (@ 1,000 RPM)	
PTO DRIVE GEAR:	55 HP (41 kW)
APPROX. WEIGHT	
WITHOUT PTO:	20 lbs. (9.1 Kg.)

SS88 SERIES

- Allows for mounting of 2, 8-bolt type PTOs behind the transmission on medium- and heavy-duty vehicles
- High-quality, 6-pitch spur gear to handle the torque ratings of large 8-bolt PTOs

MAX TORQUE	
THROUGHPUT:	14,400 lbs.ft. (20,000 Nm) 21,600 lbs.ft. (30,000 Nm)
PTO DRIVE GEAR:	1,200 lbs.ft. (1,624 Nm)
MAX HP (@ 1,000 RPM)	
PTO DRIVE GEAR:	228 HP (170 kW)
APPROX. WEIGHT	
WITHOUT PTO:	160 lbs. (72.6 Kg.)

SSH2 Series

SSH2 & SSV2/4 SERIES

- Used when auxiliary power requirements exceed the capacity of transmission-mounted PTOs
- Upright and horizontal versions provide access to output drives as needed

MAX TORQUE	
THROUGHPUT:	14,400 lbs.ft. (20,000 Nm) 21.600 lbs.ft. (30,000 Nm)
SSH2 Series: OUTPUT	940 lbs.ft. (1,274 Nm)
SSV2/4 Series: OUTPUT	796 / 433 lbs.ft. (1,079 / 587 Nm)
MAX HP (@ 1,000 RPM)	
SSH2 Series: OUTPUT	178 HP (133 kW)
SSV2/4 Series: OUTPUT	152 / 82 HP (113 / 61 kW)
APPROX. WEIGHT	
SSH2 Series:	234 lbs. (106.1 Kg.)
SSV2/4 Series:	255 lbs. (115.7 Kg.)

SSV2/4 Series

REAR MOUNT PTOS

Rear mount power take-offs are typically easier to install as the rear mount is not subject to interference problems common with side mounted PTOs. Due to limited access to traditional, side mount transmission openings, the rear mount is becoming more common in North America.

RS4S SERIES VOLVO/MACK

- Easier to install and designed for no frame or exhaust interference; no gear backlash required to adjust
- Model number construction can be different for each rear mount, reflecting specific requirements

MAX TORQUE	
INTERMITTENT:	369 lbs.ft. (500 Nm)
CONTINUOUS:	258 lbs.ft. (350 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	70 HP (52 kW)
CONTINUOUS:	49 HP (37 kW)
APPROX. WEIGHT	32 lbs. (14.5 Kg.)

RS6S-P89M SERIES DETROIT

- Designed to fit the Detroit DT12 transmissions in Freightliner, Paccar or Western Star Class 8 Cascadia trucks

MAX TORQUE	
INTERMITTENT:	317 lbs.ft. (430 Nm)
CONTINUOUS:	283 lbs.ft. (384 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	60 HP (45 kW)
CONTINUOUS:	54 HP (40 kW)
APPROX. WEIGHT	23 lbs. (10.4 Kg.)

RS SERIES EATON

- Designed in cooperation with Eaton Transmission for the Eaton medium-duty Procision transmission
- Design eliminates gear backlash to adjust and causes zero interference with the frame or exhaust

MAX TORQUE	
INTERMITTENT:	276 lbs.ft. (374 Nm)
CONTINUOUS:	193 lbs.ft. (261 Nm)
MAX HP (@ 1,000 RPM)	
INTERMITTENT:	67 HP (50.0 kW)
CONTINUOUS:	37 HP (27.0 kW)
APPROX. WEIGHT	15 lbs. (6.8 Kg.)

RM1 SERIES ALLISON

- Designed for the Allison TC-10 TS transmission with high-torque capabilities
- Created for end dump trailers, walking floors, conveyors, dry or liquid bulk transport and other blower applications

MAX TORQUE	
INTER/CONTINUOUS:	675 lbs.ft. (915 Nm)
MAX HP (@ 1,000 RPM)	
INTER/CONTINUOUS:	128 HP (95 kW)
APPROX. WEIGHT	47 lbs. (21.3 Kg.)

FLUID POWER

Beyond its expansive line of power take-offs, Muncie Power Products is also a provider of a wide range of fluid power components. With pump, valve, cylinder, reservoir and oil filter options, Muncie Power has a lineup of fluid power components to meet your hydraulic system needs.

GEAR PUMPS

Muncie Power's gear pumps are available in a wide variety of pump sizes and designs. With various pump styles and the ability to fit small to high flow rates, these pumps are designed to improve system reliability.

F SERIES

- 12 pump sizes available to fit a wide variety of applications
- Pressure-balanced bushing blocks and sleeve bearings provide long life and high performance

MAX OP. PRESSURE	3,625-2,250 PSI (250-155 BAR)
FLOW RATE (@ 1,000 RPM)*	1.07-8.70 GPM (4.0-33.0 LPM)
DISPLACEMENT	0.24-2.01 cu.in. (3.9-32.9 cc.)
APPROX. WEIGHT	7.51-10.01 lbs. (3.4-4.5 Kg.)

H SERIES

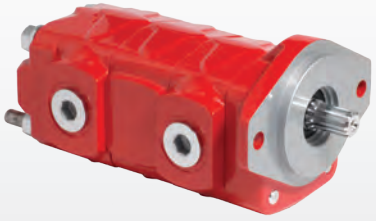
- All cast iron bushing pump designed for low to medium flow systems
- Available with integral, priority flow control capabilities; great for use on steering applications

MAX OP. PRESSURE	3,500-2,500 PSI (241-172 BAR)
FLOW RATE (@ 1,000 RPM)*	2.7-10.7 GPM (10-41.0 LPM)
DISPLACEMENT	0.62-2.48 cu.in. (10.2-40.6 cc.)
APPROX. WEIGHT	18-25 lbs. (8.3-11.3 Kg.)

K SERIES

- All cast iron construction with 4 ports and roller bearing design
- Designed to meet the application needs of either a pump or a motor

MAX OP. PRESSURE	3,000-2,500 PSI (207-172 BAR)
FLOW RATE (@ 1,000 RPM)*	4.2-17.1 GPM (15-64 LPM)
DISPLACEMENT	0.98-3.94 cu.in. (16.1-64.6 cc.)
APPROX. WEIGHT	26.5-34.1 lbs. (12.1-15.5 Kg.)



PKS1 SERIES TANDEM

- All cast iron construction with 4 ports and roller bearing design
- Designed to meet the application needs of either a pump or a motor

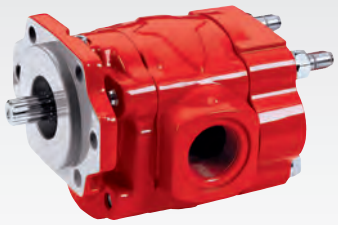
MAX OP. PRESSURE	3,000-2,500 PSI (207-172 BAR)
FLOW RATE (@ 1,000 RPM)*	4.2-17.1 GPM (15-64 LPM)
DISPLACEMENT	0.98-3.94 cu.in. (16.1-64.6 cc.)
APPROX. WEIGHT	26.5-34.1 lbs. (12.1-15.5 Kg.)

* Flow rates are theoretical.

L SERIES

- All cast iron construction with 4 ports and roller bearing design
- Bi-rotational feature helps reduce inventory requirements

MAX OP. PRESSURE	3,000-2,500 PSI (207-172 BAR)
FLOW RATE (@ 1,000 RPM)*	13.8-30.3 GPM (53-114 LPM)
DISPLACEMENT	3.18-7.01 cu.in. (52.1-114.9 cc.)
APPROX. WEIGHT	30.9-51.0 lbs. (18.1-23.2 Kg.)

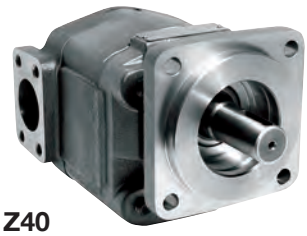


Z SERIES

- Pump assemblies custom built for replacement or new installation requirements
- Cast iron construction available in both roller bearing and bushing designs with a wide variety of displacements within each product family
- Industry-standard shafts and port options are available

MAX OP. PRESSURE		
	Roller Bearing:	3,000-2,500 PSI (207-172 BAR)
	Bushing Series:	3,500-900 PSI (241-62 BAR)
FLOW RATE (@ 1,000 RPM)*		
	Roller Bearing:	4.3-53.2 GPM (18.3-201.4 LPM)**
	Bushing Series:	2.0-39.0 GPM (7.6-147.6 LPM)**
DISPLACEMENT		
	Roller Bearing:	0.99-12.30 cu.in. (16.2-201.6 cc.)
	Bushing Series:	0.47-9.00 cu.in. (7.7-147.5 cc.)
APPROX. WEIGHT		
	Roller Bearing - Single:	31-92 lbs. (14.1-47.73 Kg.)
	Roller Bearing - Tandem:	25-79 lbs. (13.2-35.8 Kg.)
	Bushing Series - Single:	15.5-71 lbs. (7.0-32.2 Kg.)
	Bushing Series - Tandem:	15.5-72 lbs. (7.0-32.7 Kg.)

Z28
Roller Bearing Design



Z40
Bushing Design

* Flow rates are theoretical. ** Flow rate per outlet.

CLUTCH PUMPS

Clutch pumps are used when a transmission PTO aperture is unavailable or difficult to access. This type of pump is typically belt driven; however, it may also be shaft driven from the engine crankshaft.

H/K SERIES

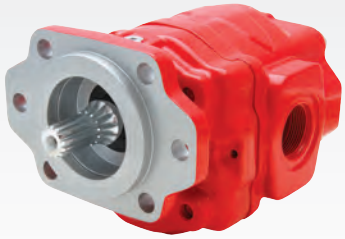
- Porting available on both the side and rear for tight-fitting chassis hookups
- Pressure-balanced wear plates provide high system efficiency for lower horsepower needs

MAX OP. PRESSURE	3,500-2,000 PSI (241-138 BAR)
FLOW RATE (@ 1,000 RPM)*	2.7-12.8 GPM (10.2-48.5 LPM)
DISPLACEMENT	0.62-2.96 cu.in. (10.2-48.5 cc.)
APPROX. WEIGHT	34-56 lbs. (15.4-25.4 Kg.)

* Flow rates are theoretical.

OPTIMUM GEAR PUMPS/MOTORS

Designed for durability, the Optimum Series high performance gear pumps/motors comes standard with Muncie Power's patented OPTI-Grip® technology. The patented technology allows for higher pressure and performance capabilities.



W SERIES

- Provides 8 displacements to cover lower flow rates, higher pressure requirements
- Bi-rotational, 4-port design is standard with speeds up to 3,600 RPM

MAX OP. PRESSURE	4,350-3,000 PSI (300-210 BAR)
FLOW RATE (@ 1,000 RPM)*	6.3-25.4 GPM (23.9-96.2 LPM)
DISPLACEMENT	1.45-4.87 cu.in. (23.9-79.8 cc.)
APPROX. WEIGHT	40.8-50.7 lbs. (18.5-23.0 Kg.)

X SERIES

- Provides 9 displacements to cover medium to heavy flow, high-pressure requirements
- Bi-rotational, 4-port design is standard with speeds up to 3,000 RPM

MAX OP. PRESSURE	4,350-2,250 PSI (300-155 BAR)
FLOW RATE (@ 1,000 RPM)*	13.8-36.5 GPM (51.2-138.2 LPM)
DISPLACEMENT	3.18-8.43 cu.in. (52.1-138 cc.)
APPROX. WEIGHT	52.9-67.0 lbs. (24.0-30.4 Kg.)

Y SERIES

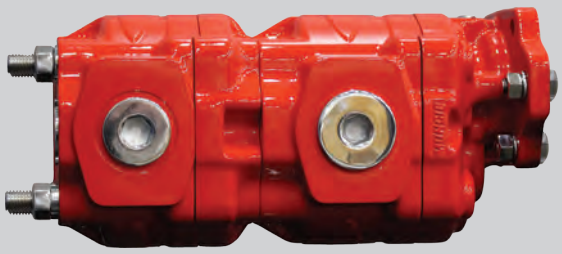
- Provides 9 displacements to cover high flow, high-demand applications
- Bi-rotational, 4-port design is standard with speeds up to 3,000 RPM

MAX OP. PRESSURE	4,000-2,500 PSI (275-172 BAR)
FLOW RATE (@ 1,000 RPM)*	22.2-62.3 GPM (84.0-235.8 LPM)
DISPLACEMENT	5.12-14.39 cu.in. (83-236 cc.)
APPROX. WEIGHT	76.9-100.7 lbs. (34.9-45.7 Kg.)

* Flow rates are theoretical.

TANDEM/ TRIPLE OPTIONS

The Optimum W and X Series gear pumps/motors are available in tandem and triple configurations with extended studs for easy installation.



X Series Tandem

REFUSE PUMPS

Muncie Power Products' refuse pump designs incorporate special valving, conserving fuel by minimizing horsepower draw in "off" mode.

MLSM SERIES LIVE PAK

- Provides protection against hydraulic overspeed damage while allowing the driver to maintain full use of the hydraulic system on refuse vehicles
- Built-in flow limiter redirects excess pump flow to the reservoir when pump is on

MAX OP. PRESSURE	3,000-2,500 PSI (207-170 BAR)
FLOW RATE (@ 1,000 RPM)*	26.4-44.4 GPM (99.3-168.1 LPM)
DISPLACEMENT	6.10-10.25 cu.in. (102-166 cc.)
APPROX. WEIGHT	103-113 lbs. (46.7-51.2 Kg.)

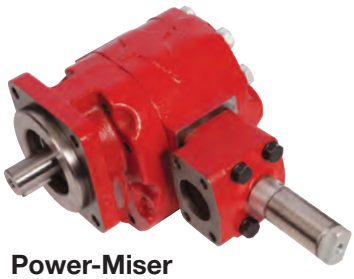
Note: Maximum temperature is 200°F (93°C) for the non-adjustable pump safety relief valve.

POWR-PRO AND POWER-MISER

- Dry valve, air-actuated pump systems designed primarily for refuse vehicles
- Lowers operating costs by reducing horsepower draw in "off" mode, saving fuel
- Powr-Pro utilizes a "butterfly" style valve; Power-Miser utilizes an air actuated, plunger-type dry valve

MAX OP. PRESSURE PL and PM Series:	3,000-2,500 PSI (207-172 BAR)
FLOW RATE (@ 1,000 RPM)* PL and PM Series:	22-5-27.6 GPM (85.2-104.5 LPM)
DISPLACEMENT PL Series: PM Series:	13.8-40.1 cu.in. (52.2-158.8 cc.) 6.10-9.27 cu.in. (100-152 cc.)
APPROX. WEIGHT PL and PM Series:	49-89 lbs. (22.2-40.4 Kg.)

Powr-Pro



Power-Miser

OPTIMUM X LIVE-FLOOR

- Long-life, high-performance bushings
- Quiet design and Muncie Power's OPTI-Grip® technology to resist casting separation
- Designed specifically for use on small single- or tandem-axle dump trucks

MAX OP. PRESSURE	3,000 PSI (207 BAR)
FLOW RATE (@ 1,000 RPM)*	6-15 GPM (23-57 LPM)
DISPLACEMENT	6.35 cu.in. (104 cc.)
APPROX. WEIGHT	61.1 lbs. (27.7 Kg.)

* Flow rates are theoretical.

DUMP AND HOIST PUMPS

Designed for dump applications, the E Series dump pump and S Series hoist pump feature both direct and remote mount options and can be shifted by air, cable or lever.

E SERIES DUMP

- Standard equipment for tandem, tri-axle dumps and dump trailers with high-volume cylinders
- EH model available for larger ports
- 2- or 3-line system options available

MAX OP. PRESSURE	
E and EH Series:	2,500 PSI (173 BAR)
FLOW RATE (@ 1,000 RPM)*	
E Series:	22-5-27.6 GPM (85.2-104.5 LPM)
EH Series:	21.4-28.6 GPM (81.0-108.3 LPM)
DISPLACEMENT	
E Series:	5.20-6.37 cu.in. (85.2-104.4 cc.)
EH Series:	4.95-6.60 cu.in. (81.1-106.0 cc.)
APPROX. WEIGHT	
E Series:	67-69 lbs. (30.4-31.3 Kg.)
EH Series:	68-70 lbs. (30.8-31.7 Kg.)

S SERIES HOIST

- Designed specifically for use on small single- or tandem-axle dump trucks
- 2- or 3-line system options available

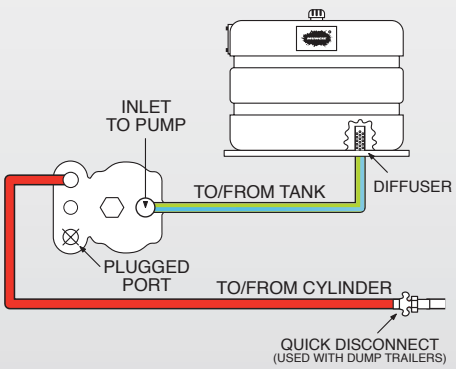
MAX OP. PRESSURE	3,000-2,500 PSI (207-172 BAR)**
FLOW RATE (@ 1,000 RPM)*	6.4-17.16 GPM (24.2-65.0 LPM)
DISPLACEMENT	1.47-3.94 cu.in. (24-65 cc.)
APPROX. WEIGHT	32-38 lbs. (14.8-17.2 Kg.)

* Flow rates are theoretical. ** Requires high pressure relief PS1-1231VH for settings above 2,500 PSI.

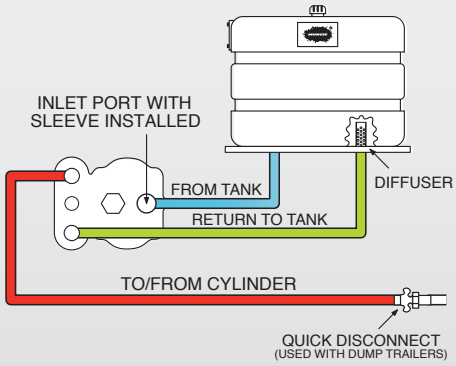
3-LINE SYSTEMS

Many dump bodies function quite adequately with a 2-line system if not left operating too long in neutral. When left operating too long in neutral however, the most common dump pump failure occurs from high temperatures as a result. A 3-line system helps prevent this failure with a separate line to return hydraulic oil from the cylinder directly to the reservoir instead of forcing its way back through the inlet line.

2-LINE INSTALLATION



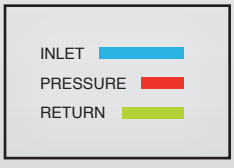
3-LINE INSTALLATION



IF OIL SPRAY FORMS AROUND THE BREATHER CAP ON A 3-LINE SYSTEM, THE TANK LINES MAY BE REVERSED.

WHY CHOOSE A 3-LINE INSTALLATION?

- Allows faster down cycles
- Provides an easier method of filtering the hydraulic oil
- Ultimately runs cooler



WET LINE KITS

Muncie Power Products' wet line kits are available in a variety of reservoir sizes and configurations in steel, aluminum or polyethylene. Select from Muncie Power's wet line kit options for detailed component selection or its Combo Kit II Series – a complete wet line kit using worldwide technology to provide installation and operation features not found in any other kit on the market.

WET LINE KIT

- Available in a variety of reservoir sizes and configurations
- Hoses of various lengths can be specified
- Detailed, component selection

(See pages 30-31 for specifications.)

COMBO KIT II SERIES

- Heavy-duty gear pump rated for long or continuous-duty cycles
- High-capacity directional valve provides faster cycle times for dump applications
- Dual-position pressure relief valve system provides protection for both applications
- Reservoir-mounted directional valve simplifies installation

(See pages 30-31 for specifications.)

DC POWER PACKS

Designed for reliable, quality performance, Muncie Power Products' DC power packs feature motors available in 12 VDC and 24 VDC. Used for numerous applications including dump bodies, snow plows, single-acting cylinders and lift gates, Muncie Power's DC power packs are available with custom or standard circuits.

- Steel reservoirs come in 6 sizes and used for higher heat applications
- Translucent, polyethylene reservoirs come in 5 sizes
- Large selection of directional valve choices
- Horizontal and vertical mounting capabilities
- Provides hydraulic power for light-duty applications
- 60-micron suction line strainer and 40-micron breather cap standard
- Generally used on single-axle chassis where the PTO aperture is inaccessible or not available
- A corded, push button remote control is standard

FIXED DISPLACEMENT PISTON PUMPS

The P, Q, R and T Series are designed for higher operating pressures than traditional gear pumps. The pump series' rugged designs allow for high performance and extra-long life with bent-axis and tandem models available. All can be directly mounted to a power take-off with a standard European DIN 5462 shaft.

P SERIES

- Offers high-speed capabilities up to 2,400 RPM
- Bi-rotational operation with 4 standard sizes

MAX OP. PRESSURE	5,075 PSI (350 BAR)
FLOW RATE (@ 1,000 RPM)*	3.17-8.70 GPM (12.0-32.9 LPM)
DISPLACEMENT	0.73-2.01 cu.in. (12-33 cc.)
APPROX. WEIGHT	23.2 lbs. (10.5 Kg.)

Q SERIES

- Offers high-operating pressures and speeds up to 1,800 RPM
- Bi-rotational operation with 5 standard sizes

MAX OP. PRESSURE	Up to 5,075 PSI (350 BAR)
FLOW RATE (@ 1,000 RPM)*	5.01-15.8 GPM (19.0-59.8 LPM)
DISPLACEMENT	1.16-3.66 cu.in. (19-60 cc.)
APPROX. WEIGHT	23.2 lbs. (10.5 Kg.)

R SERIES

- Provides high-flow capabilities with speeds up to 1,600 RPM
- Bi-rotational operation with 4 standard sizes for the R Series and 2 standard sizes for the tandem

MAX OP. PRESSURE	
R Series:	4,350 PSI (300 BAR)
R Series Tandem:	4,350 PSI (300 BAR)
FLOW RATE (@ 1,000 RPM)*	
R Series:	18.5-26.4 GPM (70.0-99.9 LPM)
R Series Tandem:	10.8-13.4 GPM (40.9-50.7 LPM)**
DISPLACEMENT	
R Series:	4.27-6.10 cu.in. (70-100 cc.)
R Series Tandem:	2.50-3.11 cu.in. (41-51 cc.)
APPROX. WEIGHT	
R Series:	38.6 lbs. (75 Kg.)
R Series Tandem:	39.0 lbs. (17.7 Kg.)

T SERIES

- A bent-axis piston pump with speed capabilities of up to 2,100 RPM
- Double shaft seals with 4 standard sizes

MAX OP. PRESSURE	6,525-5,075 PSI (450-350 BAR)
FLOW RATE (@ 1,000 RPM)*	12.4-28.5 GPM (46.9-107.9 LPM)
DISPLACEMENT	2.87-6.59 cu.in. (47-108 cc.)
APPROX. WEIGHT	23.1-29.8 lbs. (10.5-13.5 Kg.)

* Flow rates are theoretical. ** Flow rate per outlet.

VARIABLE DISPLACEMENT PISTON PUMPS

Variable displacement pumps are used in closed center hydraulic systems. In these systems there is no excess flow or loss of hydraulic horsepower as the swash plate angle decreases as the flow requirement diminishes. All three series are available with either pressure compensation, or flow and pressure compensation (load sense).

PVE SERIES

- Externally adjustable from 1,450-4,495 PSI, preset to 2,610 PSI
- 3 designs and 2 shaft types available to fit application needs

MAX OP. PRESSURE	4,495 PSI (310 BAR)
FLOW RATE (@ 1,000 RPM)*	26.4-38.8 GPM (99.9-146.9 LPM)
DISPLACEMENT	6.10-8.97 cu.in. (100-147 cc.)
APPROX. WEIGHT	121 lbs. (54.9 Kg.)

PVJ SERIES

- Externally adjustable from 1,450-4,495 PSI, preset to 2,610 PSI
- 3 designs and 4 shaft types available to fit application needs

MAX OP. PRESSURE	4,495 PSI (310 BAR)
FLOW RATE (@ 1,000 RPM)*	11.9-19.8 GPM (45.1-75.0 LPM)
DISPLACEMENT	2.75-4.58 cu.in. (45 cc.)
APPROX. WEIGHT	58.8 lbs. (26.7 Kg.)

PVL SERIES

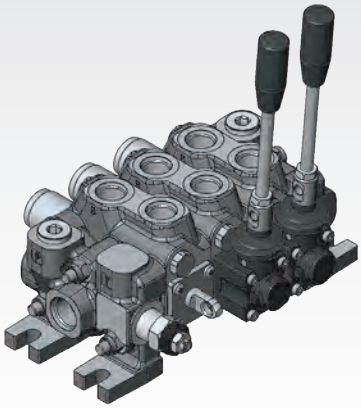
- Externally adjustable from 1,450-3,045 PSI, preset to 2,610 PSI
- 2 shaft types available

MAX OP. PRESSURE	3,045 PSI (210 BAR)
FLOW RATE (@ 1,000 RPM)*	7.9 GPM (29.9 LPM)
DISPLACEMENT	1.83 cu.in. (30 cc.)
APPROX. WEIGHT	53 lbs. (24 Kg.)

* Flow rates are theoretical.

DIRECTIONAL CONTROL VALVES

Different spool, control, positioner and accessory options allow for customization of Muncie Power Products' directional control valves. Each work section comes preassembled and 100% tested prior to shipment for customer satisfaction.



V050 SERIES

- Small size, lightweight valve with versatile design configurations
- Available with 7, standard back-cap options and 5, standard control options

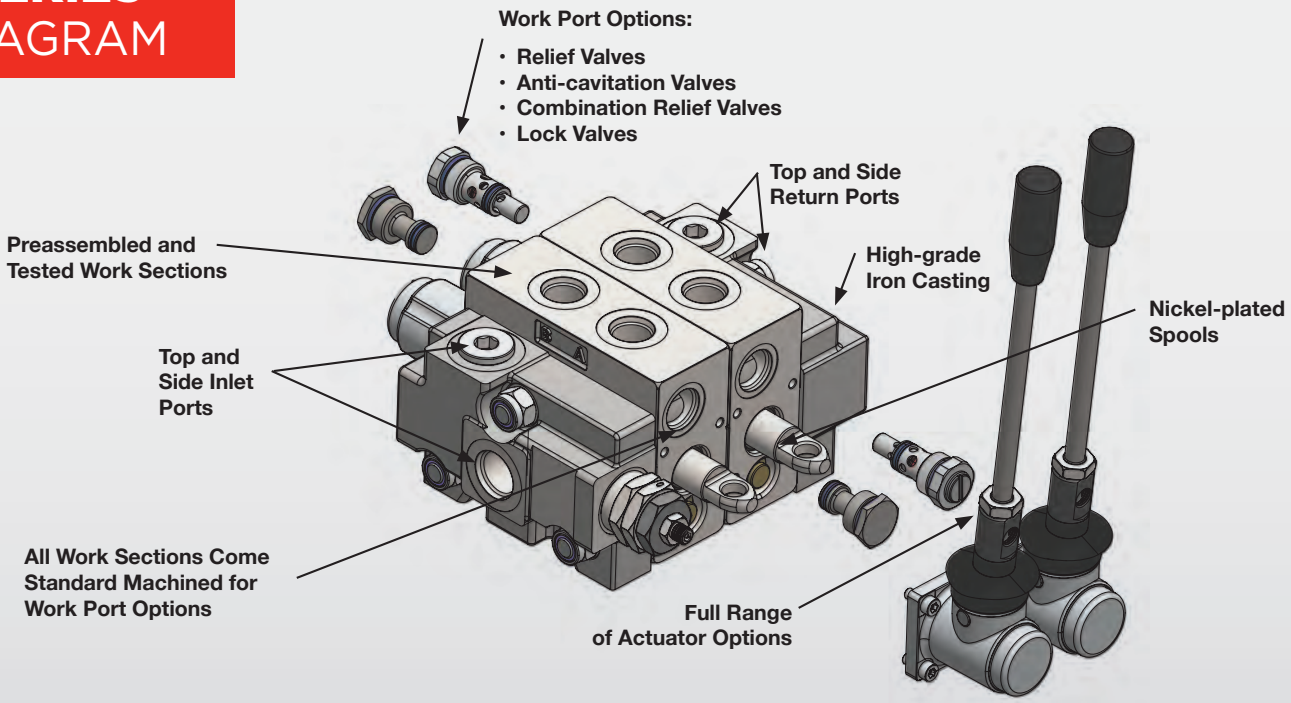
FLOW RATE	
Nominal:	13 GPM (50 LPM)
Maximum:	16 GPM (60 LPM)
MAX PRESSURE	
1-3 Sections:	5,440 PSI (375 BAR)
4-6 Sections:	5,075 PSI (350 BAR)
7-10 Sections:	4,710 PSI (325 BAR
MAX BACK PRESSURE	365 PSI (25 BAR)

V080 SERIES

- Constructed with high-grade iron castings and nickel-plated spools for use in high-pressure applications
- Load checks and inlet relief valve are standard

FLOW RATE	
Nominal:	21 GPM (80 LPM)
Maximum:	30 GPM (114 LPM)
MAX PRESSURE	
1-3 Sections:	5,075 PSI (350 BAR)
4-6 Sections:	4,650 PSI (320 BAR)
7-10 Sections:	4,350 PSI (300 BAR)
MAX BACK PRESSURE	365 PSI (25 BAR)

V080 SERIES DIAGRAM



V130 SERIES

- Internal, oil-core design allows for higher flow rates and low pressure drops in a compact package
- Tight tolerances and precision machining keep internal, spool leakages low

FLOW RATE	
Nominal:	34 GPM (130 LPM)
Maximum:	55 GPM (208 LPM)
MAX PRESSURE	
1-3 Sections:	5,440 PSI (375 BAR)
4-6 Sections:	5,075 PSI (350 BAR)
7-10 Sections:	4,710 PSI (325 BAR)
MAX BACK PRESSURE	365 PSI (25 BAR)

V250 SERIES

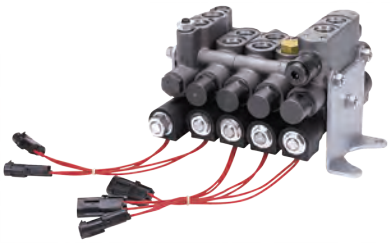
- Built to withstand extreme applications with high-pressure capabilities and high flow rates
- Work-port, relief valves; anti-cavitation valves, combination relief/anti-cavitation valves and pilot-operated relief valves available

FLOW RATE	
Nominal:	67 GPM (250 LPM)
Maximum:	75 GPM (280 LPM)
MAX PRESSURE	4,000 PSI (275 BAR)
MAX BACK PRESSURE	290 PSI (20 BAR)

17 SERIES

- A parallel circuit design permits spools to operate independently or simultaneously with the lightest load receiving priority
- Stackable design allows for assembly customization
- Precision-machined spools are hard chrome-plated for maximum life and corrosion resistance

FLOW RATE	
Nominal:	12 GPM (45 LPM)
Maximum:	18 GPM (68 LPM)
MAX PRESSURE	3,500 PSI (242 BAR)
MAX BACK PRESSURE	150 PSI (10 BAR)



L125 SECTIONAL LOAD SENSE

- Closed-centered, post-compensated with flow sharing sections that have local compensators, creating an efficient hydraulic control valve
- Offers both manual and electrohydraulic control options

FLOW RATE	
Nominal:	33 GPM (125 LPM)
Maximum:	
Inlet:	40 GPM (150 LPM)
Work Section:	26 GPM (100 LPM)
MAX PRESSURE	5,075 PSI (350 BAR)
STAND BY PRESSURE	200 PSI (14 BAR)
MAX BACK PRESSURE	145 PSI (10 BAR)

ACCESSORY VALVES

Muncie Power Products offers selector valves, relief valves, flow dividers and more to meet specific application needs.

MSV SERIES SELECTOR VALVE

- A 2-position, 2-way selector valve providing a simple means of directing oil flow into 2, separate hydraulic circuits
- Can be used as a low-pressure bypass back to the reservoir
- Shifter controls are universal and fit either end of spool
- Integral mounting flange interchangeable with existing competitor products

FLOW RATE	
Nominal:	60 GPM (227 LPM)
Maximum:	90 GPM (341 LPM)
MAX PRESSURE	
Nominal:	2,000 PSI (138 BAR) [N.P.T.]
Maximum:	3,000 PSI (207 BAR) [Straight Thread]
APPROX. WEIGHT	11.6 lbs. (5.3 Kg.)

PILOT OPERATED RELIEF VALVE — RV-30, RV-60

- Provides constant, maximum system pressure protection regardless of widely varying flow rates
- Can be inline or line mounted

FLOW RATE	
Model RV-30:	30 GPM (114 LPM)
Model RV-60:	60 GPM (227 LPM)
PRESSURE RANGE	
Model RV-30 Nominal:	300-3,000 PSI (21-207 BAR)
Model RV-60 Maximum:	300-3,000 PSI (21-207 BAR)
APPROX. WEIGHT	
Model RV-30:	0.96 lbs. (0.4 Kg.)
Model RV-60:	1.83 lbs. (0.8 Kg.)

PRIORITY FLOW DIVIDER — PFD-30

- Provides simultaneous flow for 2, separate hydraulic circuits from a single pump
- Allows a portion of the system fluid to be directed to a function that should have priority over other functions
- Compact size

FLOW RATE	30 GPM (114 LPM)
MAX PRESSURE	3,000 PSI (207 BAR)
APPROX. WEIGHT	8 lbs. (3.6 Kg.)

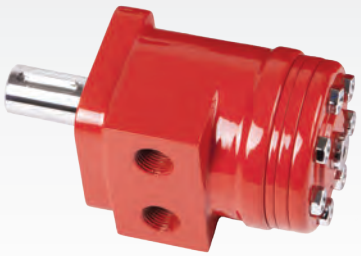
LOW SPEED HIGH TORQUE MOTORS

Muncie Power Products' line of low speed high torque motors is built for quality performance and backed by unmatched customer support. The line features 39 different displacement sizes amongst the three series and can essentially be used with any equipment requiring rotary power including food processing equipment, conveyors and agricultural equipment.

MB SERIES

- Available in 13 displacement sizes
- A spool valve design delivers high efficiencies across a broad speed and torque range
- A gerotor design provides an economical alternative
- Built-in check valves increase seal life and offer versatility

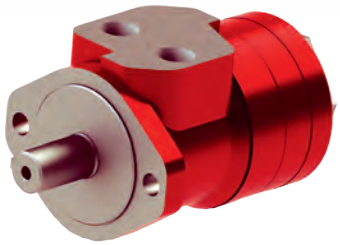
MAX OP. PRESSURE	1,400-1,800 PSI (97-124 BAR)
MAXIMUM FLOW RATE	9-16 GPM (35-60 LPM)
DISPLACEMENT	1.5-23.5 cu.in. (24.5-385.8 cc.)
APPROX. WEIGHT	11.4-15.2 lbs. (5.2-6.9 Kg.)



MH SERIES

- Available in 16 displacement sizes
- Features roller gerotor design for smooth performance, high efficiency and durability for low-speed operations
- 3-pressure zone design provides lower case pressure and extended shaft seal life

MAX OP. PRESSURE	1,500-2,500 PSI (104-172 BAR)
MAXIMUM FLOW RATE	12-16 GPM (45-61 LPM)
DISPLACEMENT	2.5-24.4 cu.in. (40-400 cc.)
APPROX. WEIGHT	13.0-20.1 lbs. (5.9-9.1 Kg.)



MJ SERIES

- Available in 10 displacement sizes
- Designed with heavy-duty, tapered roller bearings for extra side load capacity
- Heavy-duty drive link with larger pitch diameter provides greater resistance to pressure and torque spikes
- 3-zone commutator valve for higher flows and higher pressure applications

MAX OP. PRESSURE	1,750-3,000 PSI (121-207 BAR)
MAXIMUM FLOW RATE	16-20 GPM (61-76 LPM)
DISPLACEMENT	4.8-30.3 cu.in. (79-496 cc.)
APPROX. WEIGHT	24.9-31.2 lbs. (11.3-14.2 Kg.)

HYDRAULIC CYLINDERS

Featuring precision engineering and specialized machining to exacting standards, Muncie Power's single-acting telescopic cylinders are constructed from a solid, steel piece with extended stage overlap to minimize bending and reduce hydraulic fluid usage.

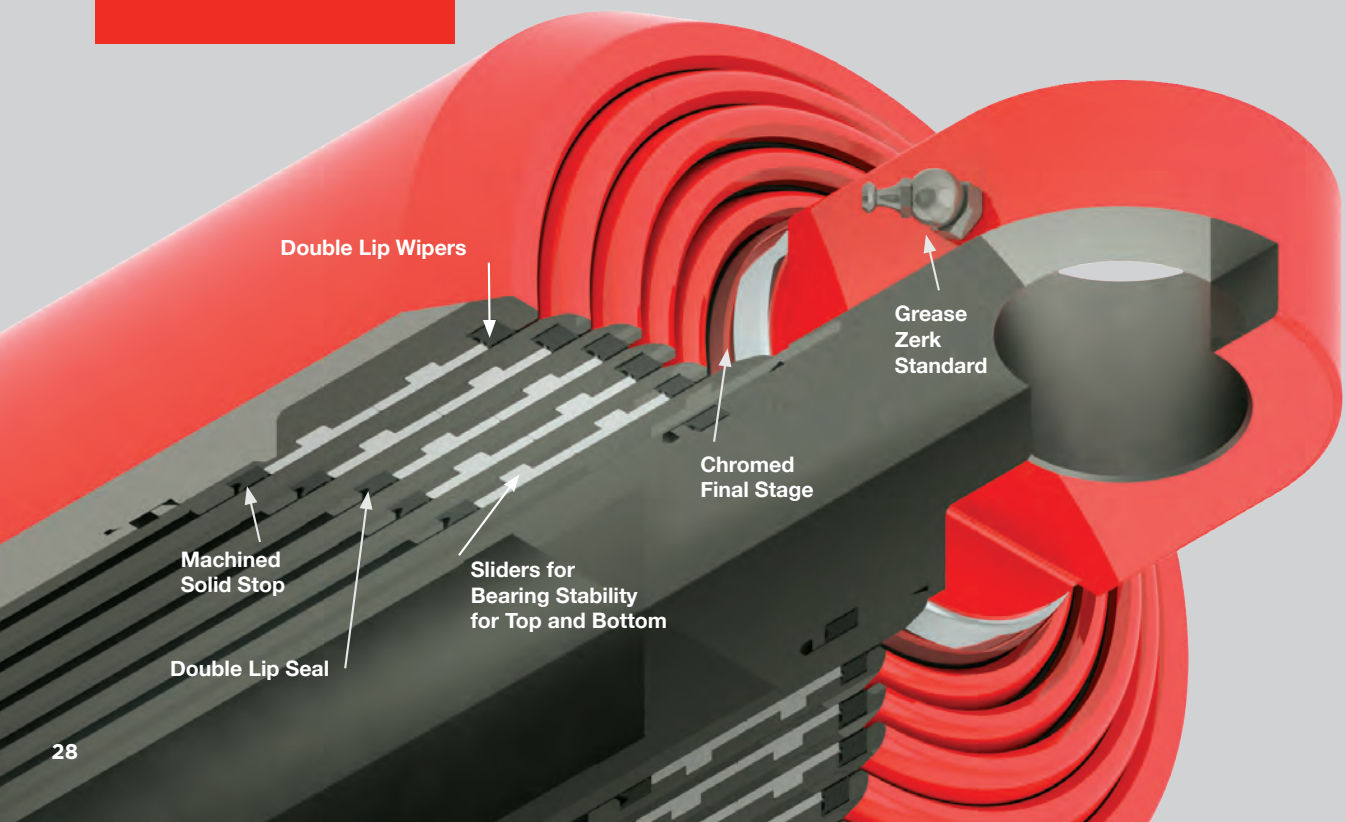
PIN-PIN

- One of the lightest cylinders on the market, which translates to greater payloads, less oil consumption and faster dumping
- A self-bleeding design for easier installation
- Single head nut with no further adjustments needed
- Chrome-plated final stage to extend product life
- Low maintenance requirements offer many years of top performance without additional expenses

MAX PRESSURE	2,900 PSI (200 BAR)
NOMINAL BORE	5 in. Model: 2 Sizes 6 in. Model: 7 Sizes 7 in. Model: 14 Sizes 8 in. Model: 14 Sizes 9 in. Model: 1 Size
STROKE	84-285 in. (2,182-5,613 mm)
MAX LIFTING CAPACITY RANGE*	22.6-87.0 ton (201-773 kN)

* Lifting capacity range based on 2,750 PSI (189.7 BAR).

PIN-PIN DIAGRAM



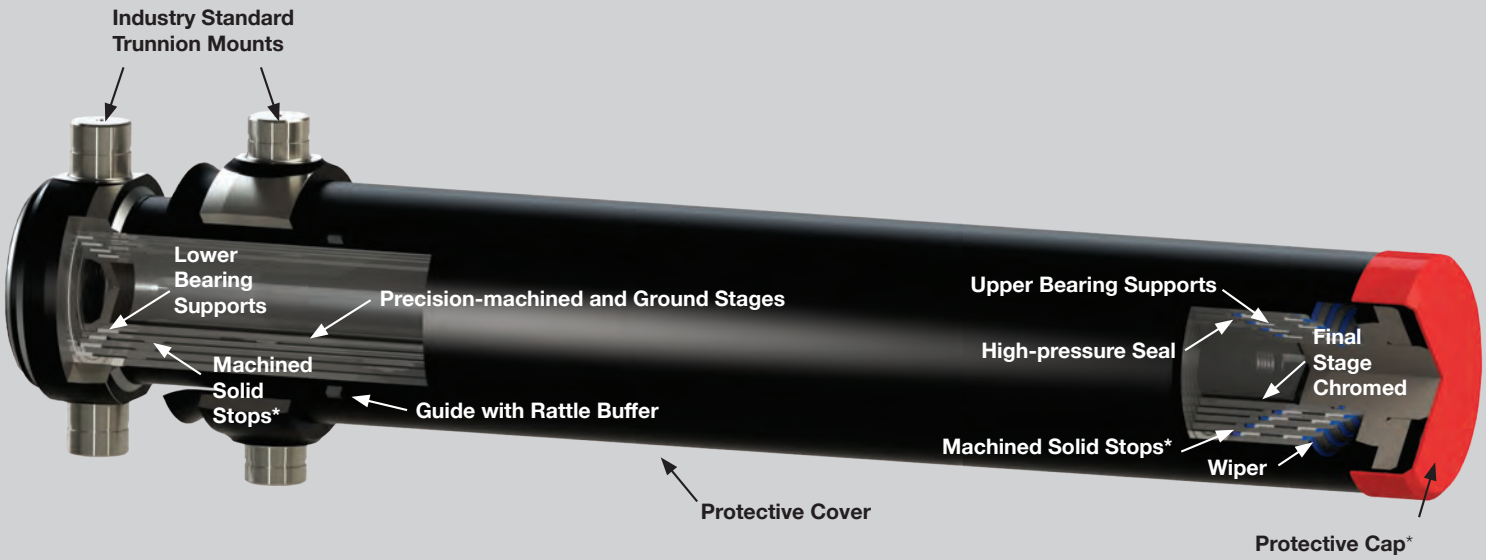
TRUNNION

- Mounting style allows for increased capacity in the dump body through a significant reduction or elimination of the dog house
- Available in both 3- and 4-stage versions
- Strict-machining tolerances, solid stop contact faces and larger overlap between stages make Muncie Power's trunnion mount cylinders some of the strongest and most stable cylinders on the market

MAX PRESSURE*	2,900 or 3,200 PSI (200 or 220 BAR)
NOMINAL BORE	3.5 in. Model: 2 Sizes 4.5 in. Model: 3 Sizes 5.5 in. Model: 3 Sizes 6.5 in. Model: 4 Sizes 7.5 in. Model: 2 Sizes
STROKE	82-194 in. (2,082-4,928 mm)
MAX LIFTING CAPACITY**	10.9-50.0 ton (97-445 kN)

* Max pressure depends on cylinder model. ** Lifting capacity range based on 2,750 PSI (189.7 BAR).

TRUNNION DIAGRAM



* Feature not available on 3.5 and 4.5 Series cylinders.

HYDRAULIC RESERVOIRS

Available in sizes from 25- to 100-gallon capacities, Muncie Power Products' hydraulic oil reservoirs are created to suit a wide range of applications – from small dump trucks to central hydraulic systems to the largest dump trailers.

METAL ROUND

- Designed for hardworking, continuous-duty applications
- Available in aluminium for lighter weight or steel for higher heat applications
- Offered in a wide variety of sizes

VOLUMES	
Aluminum (5 sizes):	25-100 gal. (94.6-1,432.9 L)
Steel (5 sizes):	25-100 gal. (94.6-1,432.9 L)
DIMENSIONS	
Aluminum:	24 in. dia. x 15 in.-51 in. Long
Steel:	24 in. dia. x 15 in.-51 in. Long
APPROX. WEIGHT	
Aluminum:	73-180 lbs. (33.1-81.7 Kg.)
Steel:	101-226 lbs. (45.8-102.5 Kg.)

METAL UPRIGHT

- Designed for hardworking, continuous-duty applications
- Available in aluminium for lighter weight or steel for higher heat applications
- Easy installation and accessibility

VOLUMES	
Aluminum (3 sizes):	50-100 gal. (189.3-1,432.9 L)
Steel (4 sizes):	50-100 gal. (189.3-1,432.9 L)
DIMENSIONS	
Aluminum:	Varies
Steel:	Varies
APPROX. WEIGHT	
Aluminum:	77-130 lbs. (34.9-59.0 Kg.)
Steel:	150-248 lbs. (68.0-128.8 Kg.)

STEEL BOX

- Offered in a large variety of sizes from compact to mid-size
- Features multiple return ports, optional tank-top filter and sensors
- Designed for continuous-duty applications that generate significant amounts of heat

VOLUMES Available (7 sizes):	7-40 gal. (26.5-151.4 L)
DIMENSIONS	Varies
APPROX. WEIGHT	40-126 lbs. (18.1-57.2 Kg.)

POLYETHYLENE BOX

- Requires only 2, metal straps and saddles for easy installation on the chassis frame rail
- Preferred in intermittent-duty applications where heat buildup is not an issue, but accessibility is required

VOLUMES Available (3 sizes):	35-50 gal. (135.6-189.3 L)
DIMENSIONS	Varies
APPROX. WEIGHT	27-55 lbs. (12.3-35.0 Kg.)

POLYETHYLENE UPRIGHT

- Upright design reduces weight, eliminates risk of contamination from corrosion, improves longevity and makes for quickest and easiest installation
- Lightweight for short-duty applications where heat buildup is not an issue

VOLUMES Available (2 sizes):	50-75 gal. (189.3-283.9 L)
DIMENSIONS	Varies
APPROX. WEIGHT	67 lbs. (30.4 Kg.)

HYDRAULIC OIL FILTERS

Reduce contamination related failures and equipment downtime with Muncie Power Products' hydraulic filters, available in both nominal and absolute filtration.

RETURN LINE

- An effective and economical means of maintaining system cleanliness
- Industry standard elements allow for easy maintenance
- Available in 6 sizes with high-pressure options
- Optional filter indicator gauge to tell when filter element needs replaced

RATING	10-25 microns (10-25 µm)
MAX FLOW RATE	24-100 GPM (90.9-378.5 LPM)
MEDIA TYPE	Microglass or Paper

TANK TOP RETURN LINE

- Available in 4 sizes
- Optional filter indicator gauge to tell when filter element needs replacement

RATING	10 microns (10 µm)
MAX FLOW RATE	24-100 GPM (90.9-378.5 LPM)
MEDIA TYPE	Microglass or Paper

HIGH PRESSURE

- Filters out contamination before it reaches a valve or scores a cylinder
- Often required to meet the demands of high-horsepower, continuous-duty applications
- Available in 2 sizes

RATING	10 microns (10 µm)
MAX FLOW RATE	24-100 GPM (90.9-378.5 LPM)
MEDIA TYPE	Microglass or Paper

AUXILIARY PRODUCTS

Muncie Power Products offers an assortment of auxiliary products to meet specific application requirements and complete your hydraulic system.

ELECTRONIC SPREADER SYSTEMS

Electronic spreader systems from Muncie Power Products feature ground-speed control, conserving salt, saving money and allowing the driver to focus on driving. As easy-to-use systems, the electronic spreader systems are simple to set up and install.

MESP 3016/3017

- Optional, adjustable floor mounting system
- Maximum operator convenience – automatic and manual mode
- System ability to control a spinner and auger/ conveyor setup

MAX FLOW RATE	40 GPM (151.4 LPM)
ADJUSTABLE RELIEF	3,000 PSI MAX (207 BAR)

MESP 3020

- Compatible with all spreaders (V-box, tailgate spreaders, etc.)
- Automatic and manual operations
- Functionality includes hoist, spinner and auger/conveyor for Class 5 trucks

MAX FLOW RATE	20 GPM (75.7 LPM)
ADJUSTABLE RELIEF	3,000 PSI MAX (207 BAR)
ADJUSTABLE SPREADER RELIEF	1,500 PSI (103 BAR)

CONTROL CONSOLES

Available in air, cable and a combination of cable/air operation, Muncie Power Products' control consoles are functional and attractive while meeting the demands of your application.

ASC2 SERIES

- LED PTO indicator light for easy dash mounting
- Push-to-connect air fittings allow easy installation for the air controller (standard in valve and air installation kit)
- Consoles have a black powder coat finish
- Some models of consoles provide a large mounting surface for extra switches, lights, valves and more
- Symmetrical design of consoles on most models provides for installation on either side of the driver's seat with options for angle mount on the floor or dash

AIR VALVES	Automatic Manual Kick Out, Lower Position
PTO PUMP CONTROL Available (6 styles):	Auto KO, Center Detent Man KO, Center Detent Auto KO, Center & Lower Detent Man KO, Center & Lower Detent Auto KO, 3 Pos. Detent Man KO, 3 Pos. Detent
CONSOLES Width x Length x Height Available (6 styles):	3 in. x 3 in. x 4 in. Square 3 in. x 3 in. x 8 in. Square 3 in. x 3 in. x 13 in. Square 3 in. x 10 in. x 4 in. Rectangular 3 in. x 10 in. x 8 in. Rectangular 3 in. x 10 in. x 13 in. Rectangular 5 in. x 5 in. x 12 in. Sq., Cent. Faceplate 5 in. x 5 in. x 12 in. Sq., Offset Faceplate Angle Mount No Console (Dash Mount)

SPD-1001 SYSTEM

The SPD-1001 system protection device offers over-speed protection and interface for a wide range of interlock devices. Accepting both RPM and MPH inputs, the SPD-1001 accepts additional safety switch inputs such as pressure switches, neutral switches, oil level/temperature switches, etc. The SPD-1001 works on both 12VDC and 24VDC systems and can be mounted in the cab or engine compartments. Use this system protection device with clutch shift PTOs, clutch pumps, the Power-Miser and the Powr-Pro.

HYDRAULIC INDICATOR
DISPLAYS AND SWITCHES

Muncie Power's hydraulic indicator display is an easy-to-install solution for caution indicator lights. The display mounts either on or above the dash and includes the switches you select with an optional buzzer available.

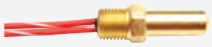
Hot Oil | Cold Oil | Low Oil | Filter Bypass

MSD1

Body Up Switch

Filter Bypass

Hot Oil/Low Oil



Cold Oil

CABLE CONTROLS

Cable controls are available in a wide variety of options including heavy-duty push-pull cables, vernier type throttle controls, replacement PTO cables and remote cable/lever controls for many popular brands of directional control valves.

FEATURES

- 3 series of heavy-load cables with rugged, no moving parts
- Attachment kits for popular valve models, ensuring smooth action while keeping contaminates out
- Works with air, cable or solenoid shift stack valves
- May be banked together into a common console

CONTROL HEAD CABLES	
Cam-Lock Controls	Open End
55 Series:	Closed End
85 Series:	Closed End
Vernier Controls	
55 Series:	Open End Open End - Disconnect Head (Friction Lock Standard) Closed End - Disconnect Head (Friction Lock Standard)
85 Series:	Closed End - Disconnect Head (Friction Lock Standard)
Knob-Non Locking	Open End
55 Series:	Closed End
85 Series:	Closed End
Deluxe PTO	Open End
65 Series:	
Standard PTO	Waterproof Covered Cable Controls
2570 Series:	for Power Take-offs
HEAVY-DUTY, PUSH-PULL	Vinyl Covered
55 Series:	.075 in. *(Stainless Steel Inner Wire)*
85 Series:	.125 in. *(Stainless Steel Inner Wire)*
165 Series:	.187 in. *(Stainless Steel Inner Wire)*
REMOTE VALVE CONTROL SYSTEM	
085 Series:	.125 in. *(Stainless Steel Member; 1x13 Strand)*
165 Series:	.187 in. *(Stainless Steel Member; 1x19 Strand)*

CONVERSION CHART

From English Units (U.S.) to Système International (Metric)

From	To	Multiply By	or	Divide By
cu.in. (in^3)	cc (cm^3)	16.39		0.06102
cu.in. (in^3)	Liters	0.01639		61.02
Pounds Feet	Newton meters (Nm)	1.356		0.7376
Gallons (U.S.)	Liters	3.785		0.2642
Gallons (U.S.)	cu.in. (in^3)	231		0.00433
Horsepower	BTU	2545.0		0.00039
Horsepower	WATTS	745.7		0.001341
Horsepower	kW	0.7457		1.341
PSI (Pounds/in^2)	BAR	0.06895		14.5
PSI (Pounds/in^2)	Kilopascal (KPa)	6.895		0.000145
Pound	Kilogram	0.4536		2.2046
Inch	Millimeter (mm)	25.4		0.03937
Mile	Kilometer (km)	1.6093		0.6214

EQUIVALENTS

T = Torque
A = Area of Circle (sq.in.)
F = Force
F = Fahrenheit
r = Radius
π = 3.1416 (pi)
Li = Length (inches)
Wi = Width (inches)
kW = Kilowatts
in. = inches

Di = Depth (inches)
Vol. = Volume
E = Efficiency
HP = Horsepower
Min = Minutes
gal. = Gallons
RPM = Revolutions Per Minute
Cir. = Cubic Inches/Revolution
Kg. = Kilograms
C = Cecilius

GPM = Gallons Per Minute
Cyl. = Cylinder
Ext = Extension
V = Velocity
Δ = Delta (change)
Tc = Torque Continuous
Ts = Torque Starting
Ta = Torque Accelerating
BAR = Unit of pressure
d = Diameter

μm = Micrometers
μ = Microns
L = Liters
km = Kilometer
mm = millimeters
cc. = cubic centimeters
cu.in. = cubic inches
lbs.ft. = force to produce torque
ft.lb. = a unit of work
Nm = Newton meters

FORMULAS FOR CALCULATOR USE

The following formulas will assist in calculating specific requirements to help determine the appropriate products to pair for a successful hydraulic system. Formulas include those to solve horsepower, torque, engine speed and so forth. For more information or clarification call Muncie Power Products at 800-367-7867.

To Solve For	Calculator Entry
PTO Output Speed	PTO RPM = Engine RPM x PTO%
Required Engine Speed	Engine RPM = Desired PTO RPM ÷ PTO%
Horsepower	HP = T x RPM ÷ 5252
Torque	T = HP x 5252 ÷ RPM
Area of a Circle	$A = \pi r^2$ or $A = d^2$ x .7854
Volume of a Cylinder	$V = \pi r^2$ x Li ÷ 231 ***OR*** d^2 x .7854 x Li ÷ 231
Force of a Cylinder	F = A x PSI
Cylinder Extension (inches/second)	Ext. Rate = GPM x 4.9 ÷ d^2
Cylinder Extension (time to extend)	Ext. Time = Cyl. Volume x .26 ÷ GPM
Volume of a Reservoir (rectangular)	Vol. = Li x Wi x Di ÷ 231
Volume of a Reservoir (round)	Vol = πr^2 x Li ÷ 231 ***OR*** d^2 x .7854 x Li ÷ 231
Pump Output Horsepower	HP = GPM x PSI ÷ 1714
Pump Input Horsepower	HP = GPM x PSI ÷ 1714 ÷ E
Pump Input Torque (ft.lbs.)	T = CID x PSI ÷ 24π
Pump Output Flow	GPM = CIR x RPM ÷ 231 x E
Pump Input Speed	RPM = GPM x 231 ÷ CIR ÷ E
Displacement of Pump	CIR = GPM x 231 ÷ RPM ÷ E
Flow in GPM Using PTO	GPM = Engine RPM x PTO% x CIR ÷ 231 x E
Velocity of Oil	V = GPM x .3208 ÷ A
Pressure Drop Through an Orifice	ΔP = .025 x GPM2 ÷ d^5
Heat Rise in Degrees F	ΔF^o = HP x 746 x Inefficiency x Min. ÷ Gal. in System ÷ 60

NOTE: The following hydraulic motor formulas are calculated in inch pounds (in.lbs.) rather than foot pounds. To convert to ft.lbs. divide by 12.

MOTOR OUTPUT TORQUE	
Continuous	Tc = GPM x PSI x 36.77 ÷ RPM ***OR*** Tc = CID x PSI ÷ 2 π ***OR*** Tc = HP x 63025 ÷ RPM
Starting	Ts = Tc x 1.3
Accelerating	Ta = Tc x 1.1
Motor Working Pressure	T x 2 π ÷ CIR ÷ E
Motor RPM	RPM = GPM x 231 ÷ CIR

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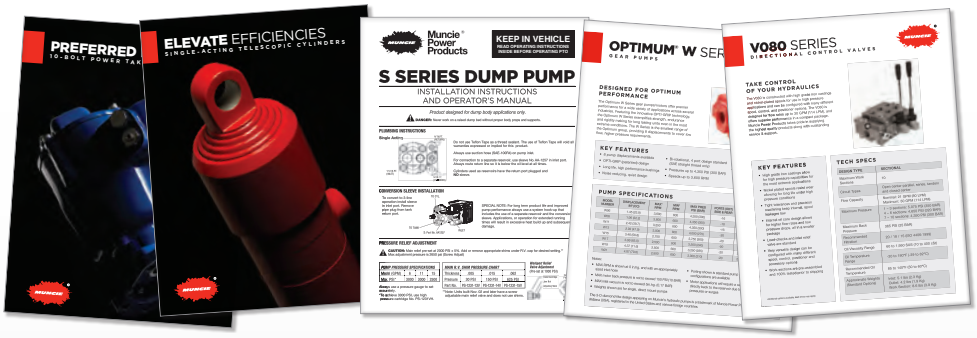
Understanding Reference Manuals: Available reference manuals from Muncie Power Products include the *Understanding Truck Mounted Hydraulic Systems* and *Understanding Power Take-off Systems*. In *Understanding Truck Mounted Hydraulic Systems* you'll learn what components make up a truck mounted hydraulic system, how a truck mounted or mobile hydraulic system works and why truck mounted hydraulic systems sometimes fail to perform as expected. Its companion manual – *Understanding Power Take-off Systems* – focuses specifically on PTOs, defining a power take-off, its different aspects and types and how to install and select the appropriate PTO.

QR Catalog: The *Muncie Power Products PTO Quick Reference Catalog* makes spec'ing out a power take-off for your transmission quick and simple. Serving as a resource tool for the most appropriate PTO specs, the catalog is available upon request through Muncie Power's customer service team or online via its M-Power Specification Software. ***Check online for the most up-to-date information, as the catalog is continually updated.***

Literature: Muncie Power Products offers a variety of literature available for free via online download or by request through its customer service team. Depending on the product, available literature can include a marketing brochure, spec brochure, data sheet, installation instructions and service parts manual.



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Muncie® Power Products

WE BUILD TRUST.

At Muncie Power Products, it's about more than building hydraulic components; it's about building trust.

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