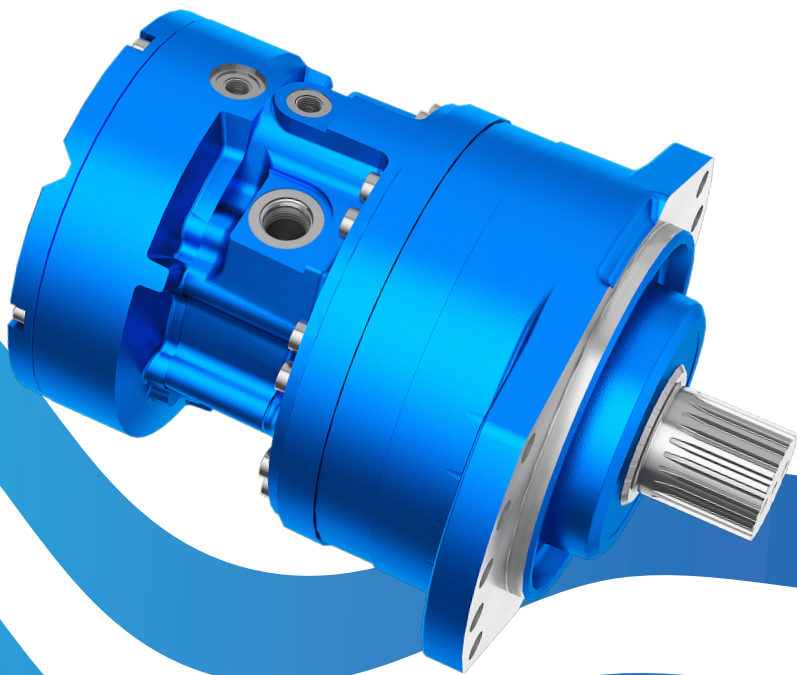


XJ08

RADIAL PISTON MOTOR



You are at the **centre**
of everything we do

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ABOUT US

Rotary Power specialises in the design, development and manufacture of hydraulic motors and pumps.

With a history dating back over 50 years, we understand the exacting and demanding requirements of today's hydraulic applications.

Operating from 18,000 sq. m. of purpose built manufacturing facilities, based in the North East of England and Bangalore, India, we continue to invest in the latest CNC machinery, automation and testing facilities. We have a clear focus on continuous improvement in lean cellular manufacturing. These facilities, alongside our European and US operations, offer sales, service and production support for the entire Rotary Power product range. A worldwide network of distribution partnerships provide additional support all over the world.

OUR BUSINESS

We recognise the importance of developing partnerships with our customers. That's why we offer flexibility in design, delivery and service to meet our customer's requirements.

Partnerships with our supply chain are key to Rotary Power's success and allow us to deliver excellent service in order to exceed expectations.

OUR PEOPLE

People are at the centre of everything we do. As an innovative engineering and manufacturing business we take recruitment and career development very seriously.

As part of the British Engines Group, we operate a training and development programme that maintains a strong focus on in-house manufacturing and a commitment to local employment. Our apprenticeship and graduate schemes provide the opportunity to develop and nurture engineering talent from an early stage.

OUR FUTURE

Whether in product design or internal processes and systems, our engineers are actively encouraged to develop new ideas within design and manufacturing. This ensures that we are at the forefront of customer and sector led innovation, whilst continuously improving our business.

Our team of in-house design engineers invest time into understanding our customer's application and work with them to deliver value added solutions, customised to their application.

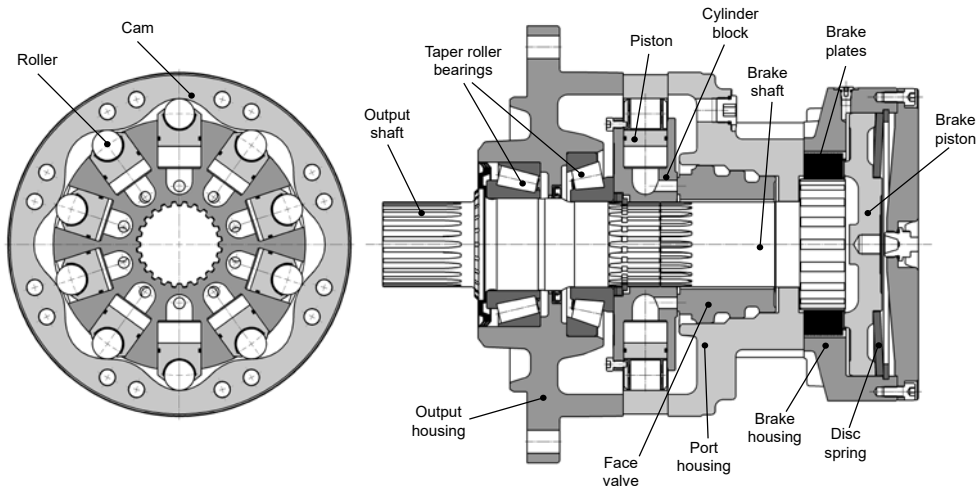


XJ RANGE

The XJ motor has a range of features and options designed to suit your specific application:

- Radial piston, multi-stroke operation
- Modular design
- Two speed options
- Parking brake options
- Freewheel capability
- Multiple mounting arrangements
- 350 bar continuous pressure
- Fast delivery options

The motor is designed with a rotating cylinder block connected to the drive shaft, which is mounted in taper roller bearings within the motor housing. This offers a high radial and axial load carrying capacity.



The pistons are located radially within the bores of the cylinder block. When oil is fed under pressure through the face valve and into the cylinder block, the pistons attempt to move outwards. The rollers react on the incline of the cam profile and this action produces rotation of the cylinder block.

The rate of flow to the motor will determine the speed at which the piston moves out against the cam ring and consequently the rotational speed of the motor. Once the power stroke is complete, the pistons return into the bore by the action of the reverse cam slope, ready for the next pressure cycle.

With units operating all over the world in a variety of applications including industrial, mobile and marine, the XJ range offers real application options for the future.



Weight of motor without oil



Sizes are listed in mm, inches shown in brackets

PRODUCT FEATURES
STANDARD DISPLACEMENTS

Fluids	HL; HLP to DIN 51524 Other specified fluids are possible.
Normal operating viscosity range	20 to 200 cSt
Maximum intermittent viscosity range	10 to 2,000 cSt
Normal operating temperature range	+15°C to +70°C [+59°F to +158°F]
Maximum intermittent temperature range *If operating outside of these parameters please contact Rotary Power	-20° to +80° C [-4°F to +176°F]
Fluid cleanliness	ISO 4406 Code 18/16/13 (NAS 1638 Class 7)

SINGLE SPEED MOTORS		STANDARD DISPLACEMENTS					INCREASED DISPLACEMENTS		
DISPLACEMENT OPTION	A	B	C	D	E	F	1	2	3
Geometric displacement (cc/rev) [in³/rev]	467 [28.5]	627 [38.2]	702 [42.8]	780 [47.6]	857 [52.3]	934 [57.0]	1043 [63.6]	1146 [69.9]	1248 [76.1]
Specific torque (Nm/bar) [lbf.ft/psi]	7.4 [0.38]	10.0 [0.51]	11.2 [0.57]	12.4 [0.63]	13.6 [0.69]	14.9 [0.76]	16.6 [0.84]	18.2 [0.93]	19.9 [1.01]
Max. continuous speed (rpm)	255	200	180	160	145	135	125	110	100
Max. continuous power (kW) [hp]	41 [55.0]								

TWO SPEED MOTORS		STANDARD DISPLACEMENTS					INCREASED DISPLACEMENTS		
DISPLACEMENT OPTION	A	B	C	D	E	F	1	2	3
Geometric displacement (cc/rev) [in³/rev]	467 [28.5]	627 [38.2]	702 [42.8]	780 [47.6]	857 [52.3]	934 [57.0]	1043 [63.6]	1146 [69.9]	1248 [76.1]
Specific torque (Nm/bar) [lbf.ft/psi]	7.4 [0.38]	10.0 [0.51]	11.2 [0.57]	12.4 [0.63]	13.6 [0.69]	14.9 [0.76]	16.6 [0.84]	18.2 [0.93]	19.9 [1.01]
Max. continuous speed (rpm)	235	172	155	130	120	110	100	90	80
Max. continuous power (kW) [hp]	41 [55.0]								

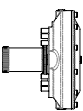
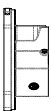
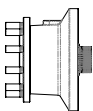
STANDARD DISPLACEMENTS							INCREASED DISPLACEMENTS		
DISPLACEMENT OPTION	A	B	C	D	E	F	1	2	3
Geometric displacement (cc/rev) [in³/rev]	234 [14.2]	314 [19.1]	351 [21.4]	390 [23.8]	429 [26.1]	467 [28.5]	522 [31.8]	573 35.0]	624 [38.1]
Specific torque (Nm/bar) [lbf.ft/psi]	3.7 [0.19]	5.0 [0.25]	5.6 0.28]	6.2 [0.32]	6.8 [0.35]	7.4 [0.38]	8.3 [0.42]	9.1 [0.46]	9.9 [0.51]
Max. continuous speed (rpm)	250	185	165	150	125	115	110	95	85
Max. continuous power (kW) preferred direction[hp]	27 [36.2]								
Max. continuous power (kW) non-preferred direction[hp]	21 [28.2]								

Max. pressure - Standard Displacements 450 bar [6527 psi]
Max. pressure - Increased Displacements 400 bar [5801 psi]

*Maximum values should only be applied for a small portion of the duty cycle.



MOTOR ORDER CODE



PRODUCT
01

CAM
02

03

04

05

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09

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11

12

REAR BRAKE
13

14

15

16

SPECIALS
17

DESIGN
18

XJ08

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A3

PRODUCT

01	XJ08	Radial piston motor
----	------	---------------------

CAM - DISPLACEMENT

02	A	Standard Displacements	467 cc/rev
	B		627 cc/rev
	C		702 cc/rev
	D		780 cc/rev
	E		857 cc/rev
	F		934 cc/rev
	1	Increased Displacements	1043 cc/rev
	2		1146 cc/rev
	3		1248 cc/rev

FRONT MODULE - CASE STYLE

03	T	Torque unit
	S	Shaft motor, front case flange
	W	Wheel motor, no case flange

FRONT MODULE - OUTPUT SHAFT

04	N	No Shaft (Torque Unit NF E22-141: 65 x 24 x 2.5 Spline)
	A	Splined Shaft NF E22-141: 65 x 24 x 2.5 (fit 2)
	B	Splined Shaft DIN 5480: W70 x 3 x 30 x 22 x 7h
	C	Keyed shaft - Ø70mm
	E	Wheel Output 6 off, Ø205 PCD, Ø160.7 spigot (M18 studs)
	F	Wheel Output 8 off, Ø203.2 PCD, Ø150.9 spigot (M20 studs)
	M	Wheel Output 8 off, Ø275 PCD, Ø220.7 spigot (M20 studs)

FRONT MODULE - OUTPUT FITTINGS

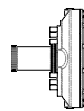
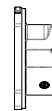
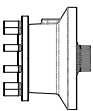
05	N	None (Torque Unit or Shaft Motor)
	E	M18 x 1.5 Studs (L = 65 mm)
	F	M18 x 1.5 Studs (L = 65 mm) & Nuts
	G	M20 x 1.5 Studs (L = 60 mm)
	H	M20 x 1.5 Studs (L = 60 mm) & Nuts
	O	Ø20 mm Through Holes
	P	Ø22 mm Through Holes

FRONT MODULE - SHAFT SEAL CONFIGURATION

06	1	Standard Shaft Seal and Dirt Excluder
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FRONT MODULE - FRONT BRAKE

07	N	No brake (standard)
----	---	---------------------



PRODUCT
01

CAM
02

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REAR BRAKE
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SPECIALS
17

DESIGN
18

XJ08

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PORT MODULE - MOUNTING FLANGE

08	N	No flange (torque units and shaft motors)
	L	Lug Flange (wheel motors and torque units)

PORT MODULE - SPEED AND ROTATION

09	1R	Single Speed - Pressure Port A = CW Rotation
	RA	2-Speed (Ratio 2:1) CW Preferred Rotation
	LA	2-Speed (Ratio 2:1) ACW Preferred Rotation

PORT MODULE - HYDRAULIC CONNECTIONS

10	0	No port block
	1	All ports SAE J514
	3	All ports BSP ('G' Ports)
	4	ISO 6162-2 MAIN PORTS + SAE PORTS
	5	ISO 6162-2 MAIN PORTS + BSP PORTS

PORT MODULE - ADDITIONAL CIRCUIT VALVING

11	N	None
----	---	------

PORT MODULE - SPEED SENSOR

12	N	N - None
	S	S - Speed Sensor Port In Port Housing
	A	A - Non-Directional Speed Sensor
	B	B - Directional Speed Sensor

REAR BRAKE

13	N	None
	Q	Brake - 9000 Nm, Environmental Cover Fixed with Screws

OPTIONS

14 15 16	0	None
	G	Special Paint (Specify RAL No)
	P	Shaft-Up Vent Port

SPECIALS

17	00	Rotary Power specified
----	----	------------------------

DESIGN SERIES

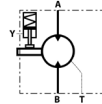
18	A3	Design series
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TORQUE UNIT

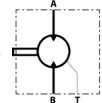
PRODUCT	CAM	FRONT MODULE					PORT MODULE					REAR BRAKE	OPTIONS			SPECIALS	DESIGN
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
XJ08		T	N	N	1	N	N	1R		N	N					00	A3

(For models shown below)

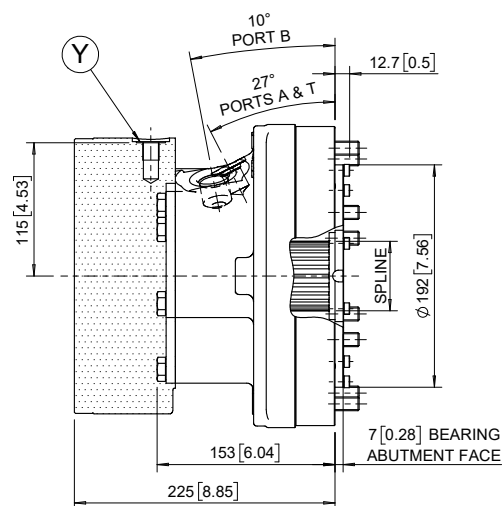
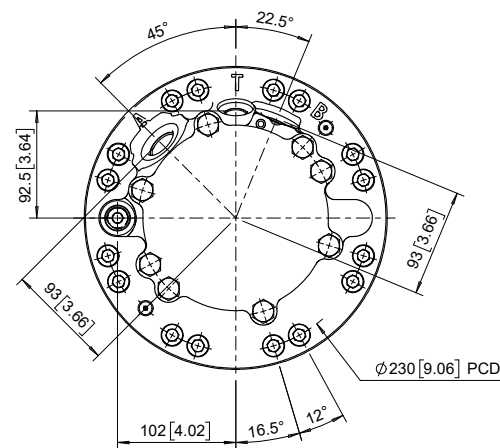
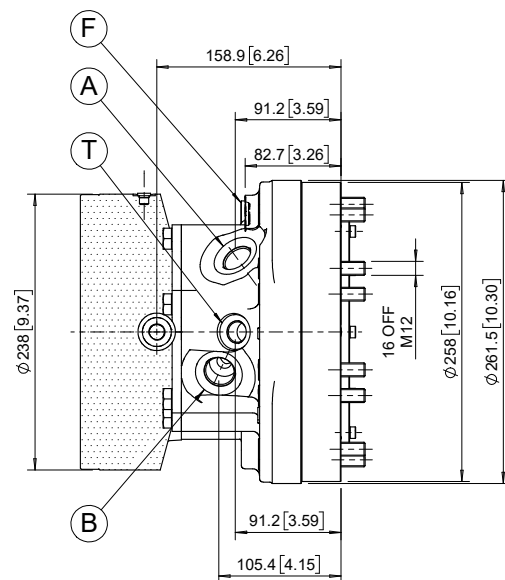
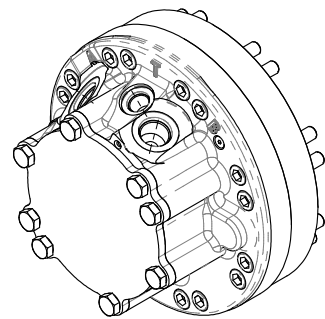
 55.6 kg [122.6 lbs] with brake



 31.8 kg [70.1 lbs] without brake



Rotor spline
NF E22-141 65 x 24 x 2.5
Other spline options available, contact us for more information.
See page 22 for hydraulic connection options.

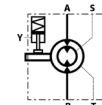


TORQUE UNIT
TWO SPEED OPTION

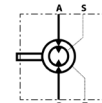
PRODUCT	CAM	FRONT MODULE					PORT MODULE					REAR BRAKE	OPTIONS			SPECIALS	DESIGN
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
XJ08		T	N	N	1	N	N			N	N					00	A3

(For models shown below)

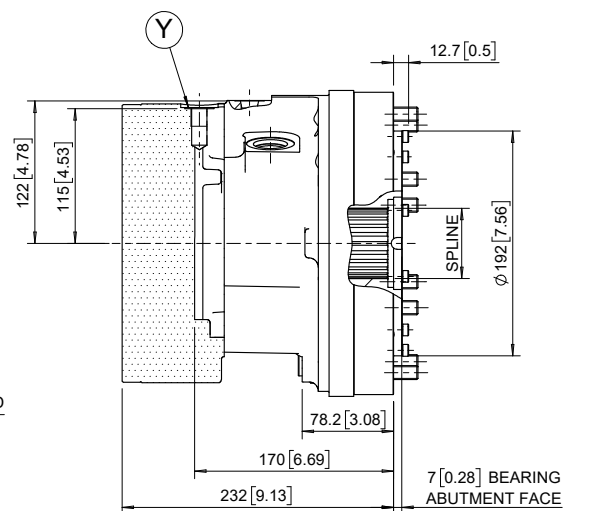
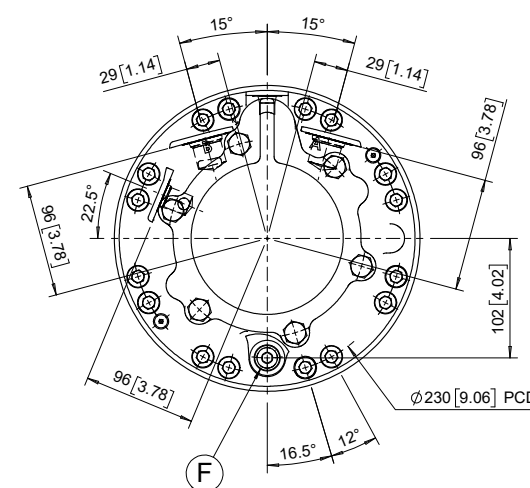
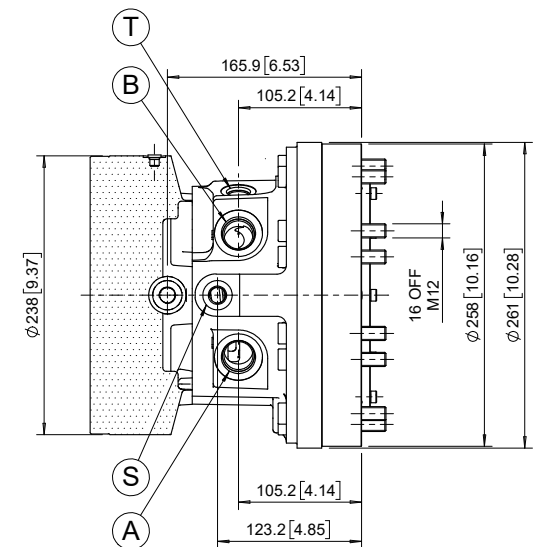
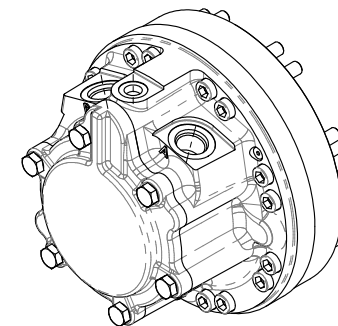
 58.1kg [128.1 lbs] with brake



 34.7kg [76.5 lbs] without brake



Rotor spline
NF E22-14165 x 24 x 2.5
Other spline options available, contact us for more information.
See page 22 for hydraulic connection options.

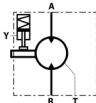


TORQUE UNIT
SINGLE SPEED OPTION

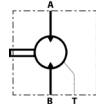
PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12					REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		T	N	N	1	N	L	1R		N	N					00	A3

(For models shown below)

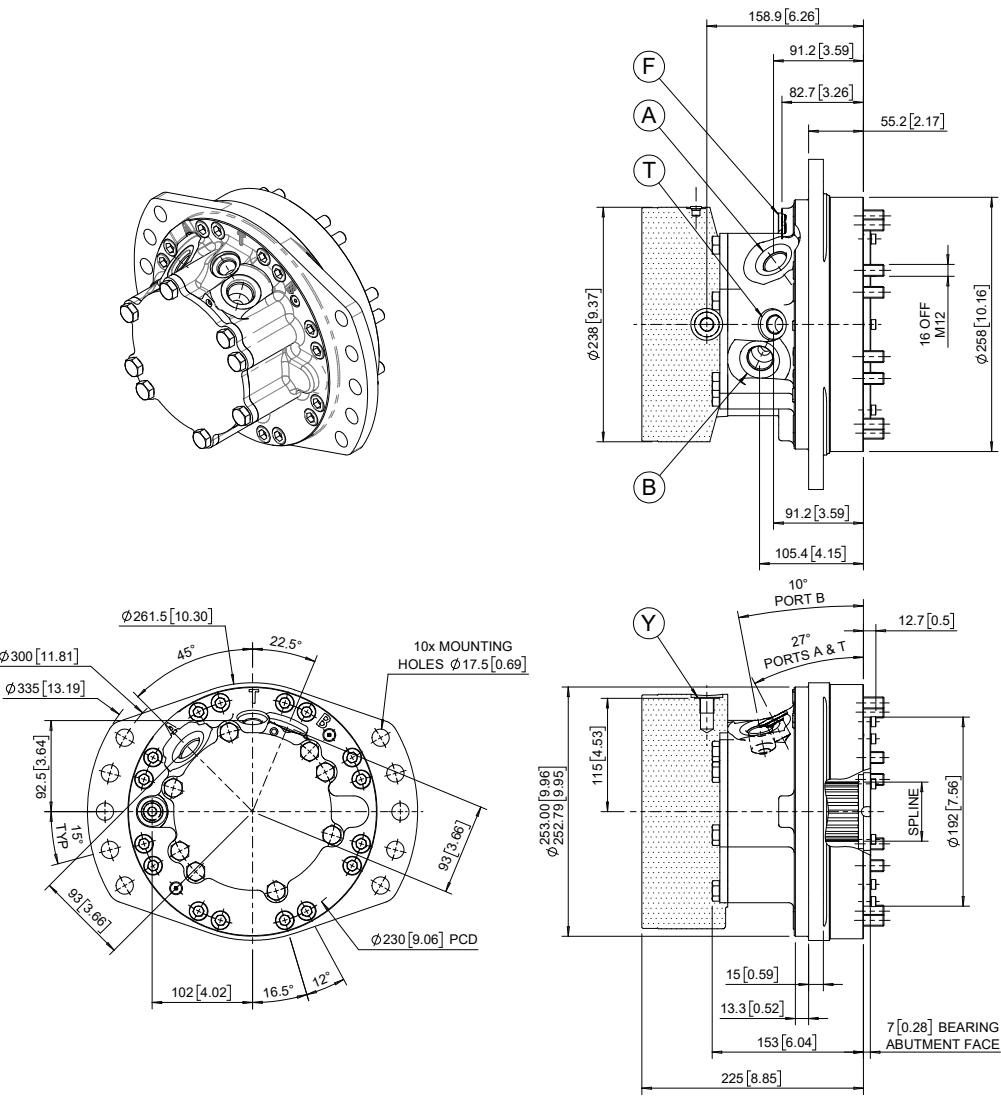
 56.9kg [125.4 lbs] with brake



 33.1kg [73.0 lbs] without brake



Rotor spline
NF E22-141 65 x 24 x 2.5
Other spline options available, contact us for more information.
See page 22 for hydraulic connection options.

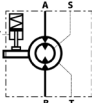


TORQUE UNIT
TWO SPEED OPTION

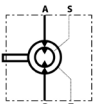
PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12					REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		T	N	N	1	N	L			N	N					00	A3

(For models shown below)

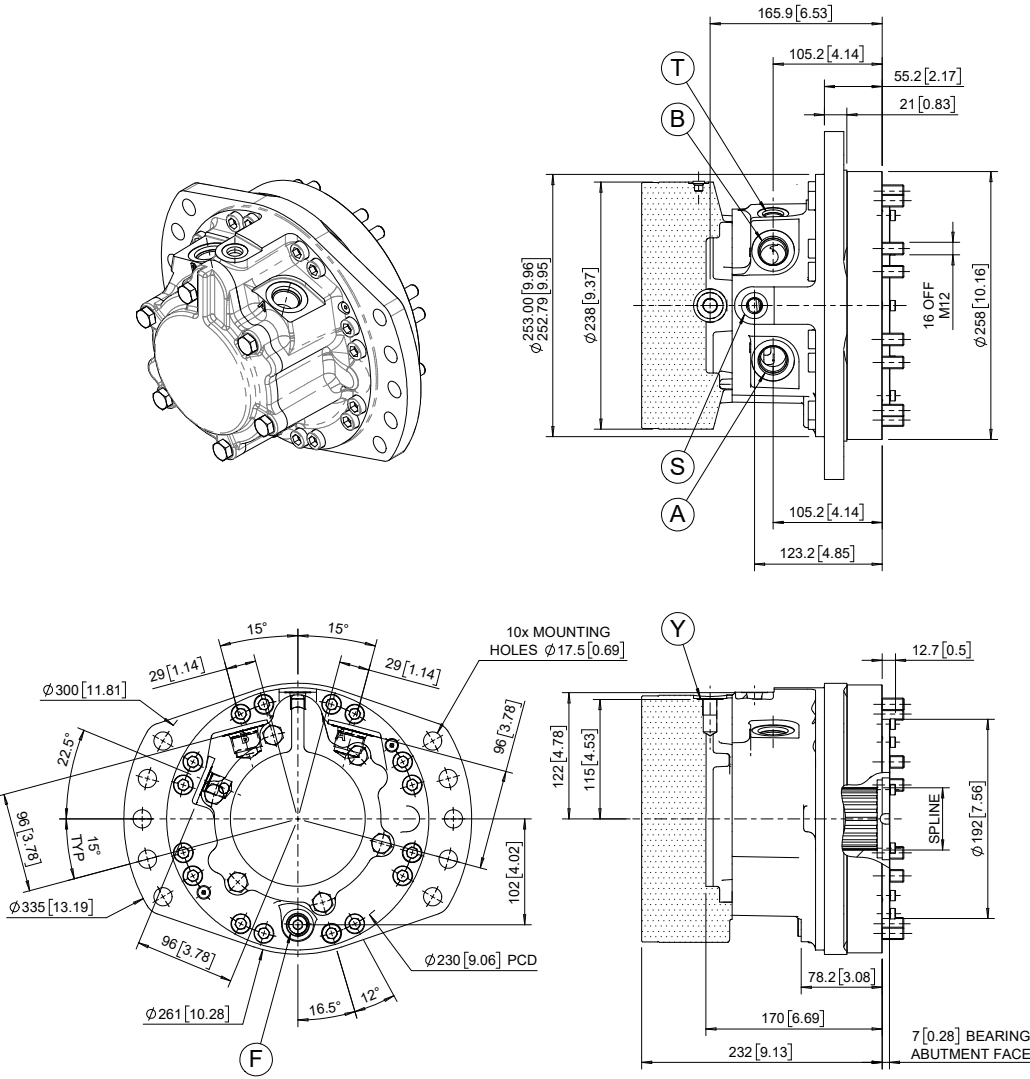
 60.0kg [132.3 lbs] with brake



 36.6kg [80.7 lbs] without brake



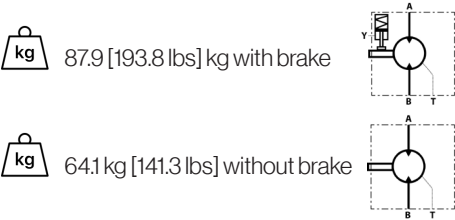
Rotor spline
NF E22-141 65 x 24 x 2.5
Other spline options available, contact us for more information.
See page 22 for hydraulic connection options.



SHAFT MOTOR
SINGLE SPEED WITH SPLINE

PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12					REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		S	A	N	1	N	N	1R		N	N					00	A3

(For models shown below)

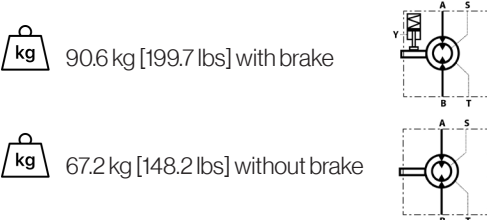


Shaft spline
NF E22-141 65 x 24 x 2.5 (FIT 2)
See page 14 for additional shaft options.
See page 22 for hydraulic connection options.

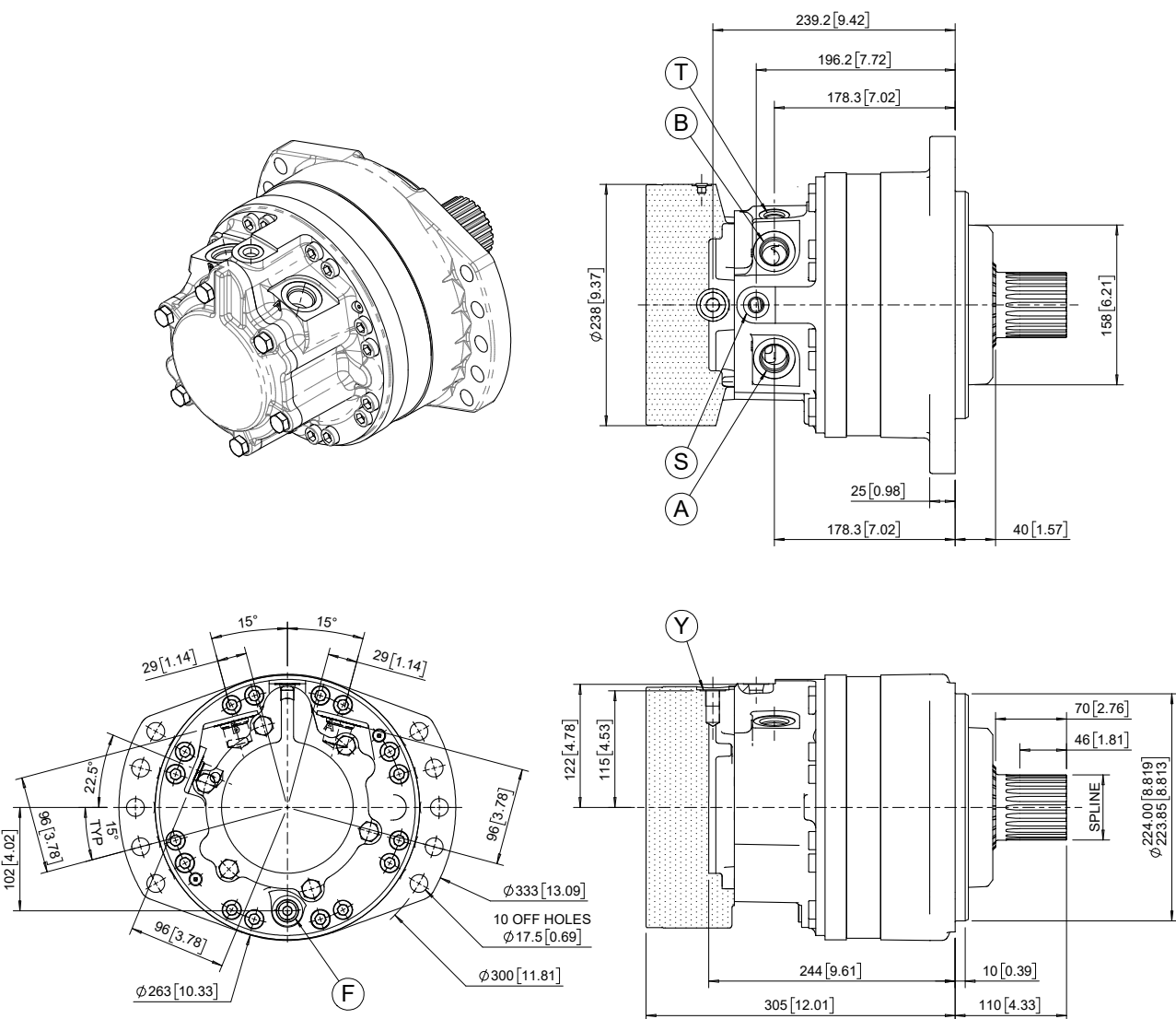
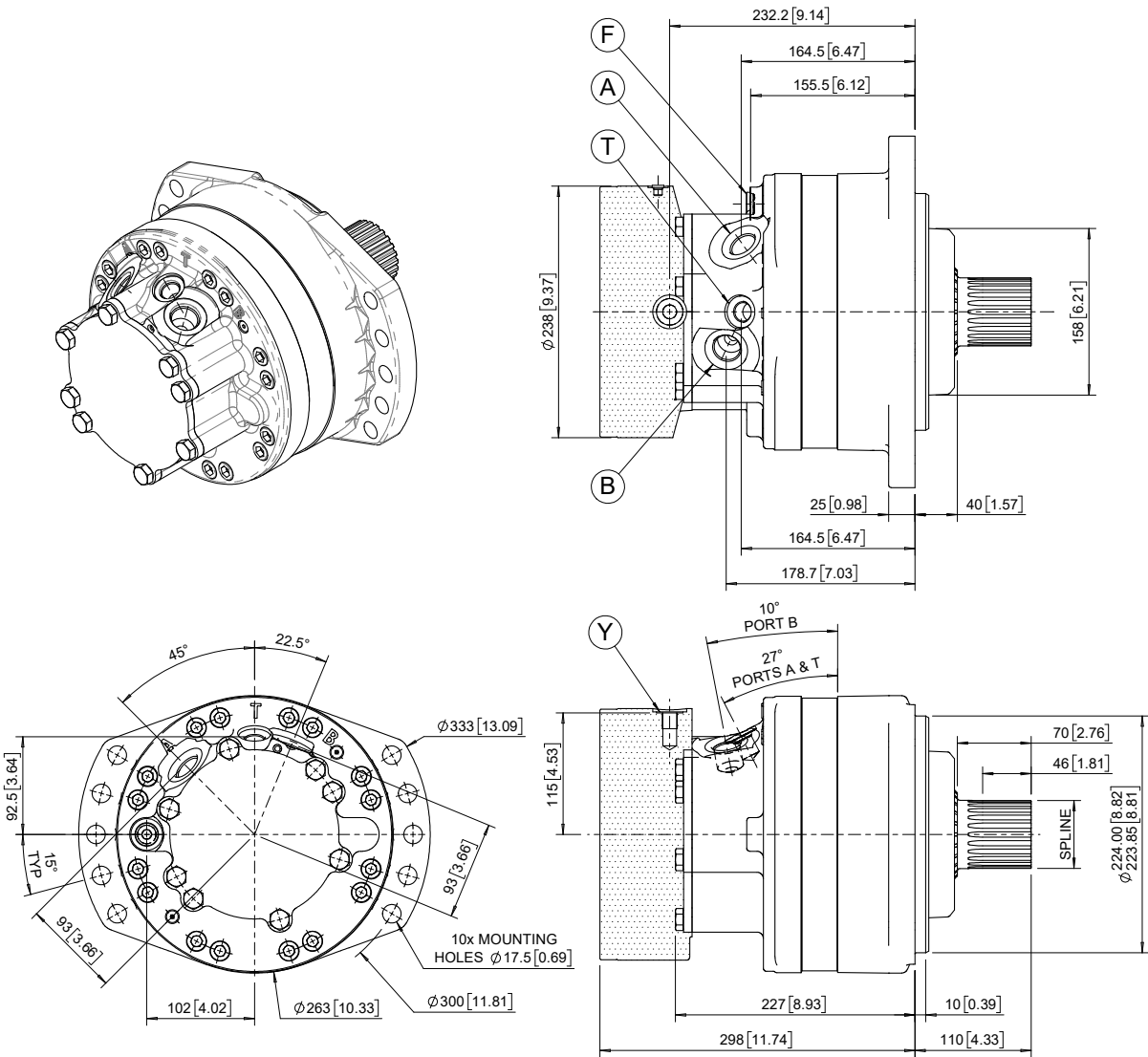
SHAFT MOTOR
TWO SPEED WITH SPLINE

PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12					REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		S	A	N	1	N	N			N	N					00	A3

(For models shown below)



Shaft spline
NF E22-141 65 x 24 x 2.5 (FIT 2)
See page 14 for additional shaft options.
See page 22 for hydraulic connection options.



SHAFT MOTOR
OUTPUT OPTIONS

PRODUCT
01

XJ08

CAM
02

FRONT MODULE

03

04

05

06

07

S

N

1

N

PORT MODULE

08

09

10

11

12

N

N

REAR MODULE

13

OPTIONS

14

15

16

SPECIALS

17

00

DESIGN

18

A3

SPLINE

FRONT MODULE

03

04

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S

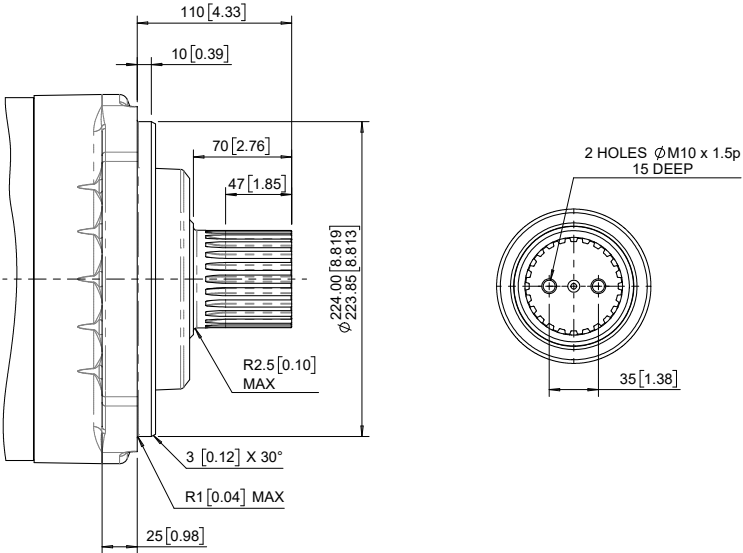
B

N

1

N

DIN 5480 - W70x3x30x22x7h	
Reference Ø	70
Module	3
Pressure Angle	30
No. Teeth	22
Fit	7h



KEYED OUTPUT

FRONT MODULE

03

04

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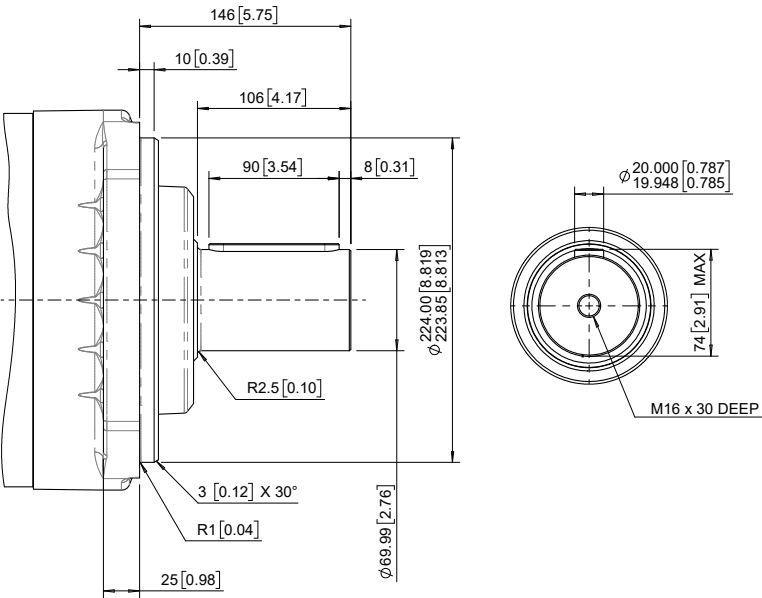
S

C

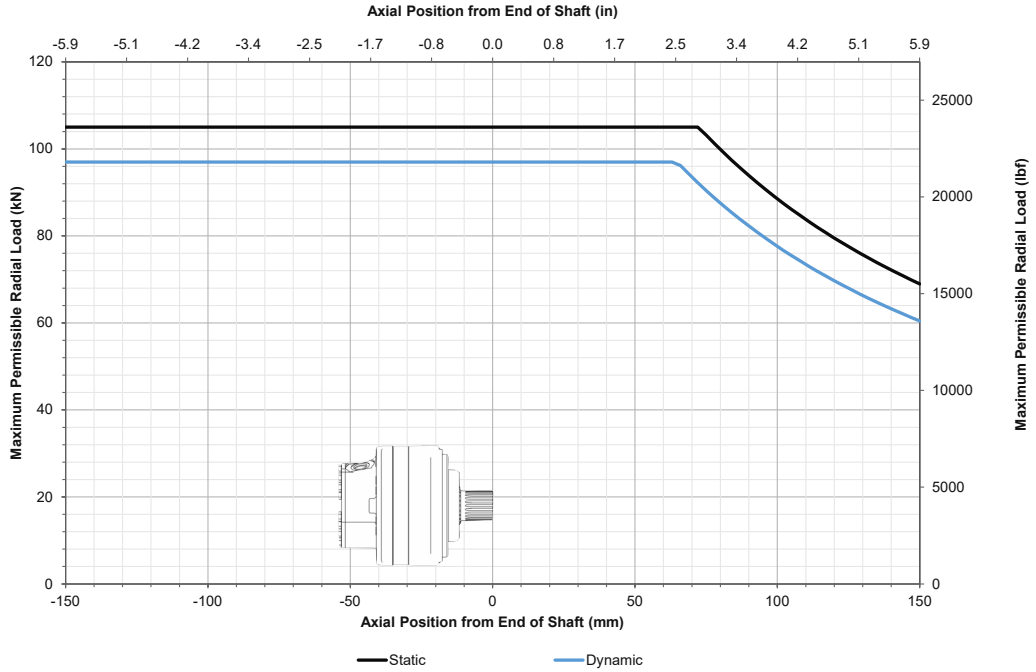
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N

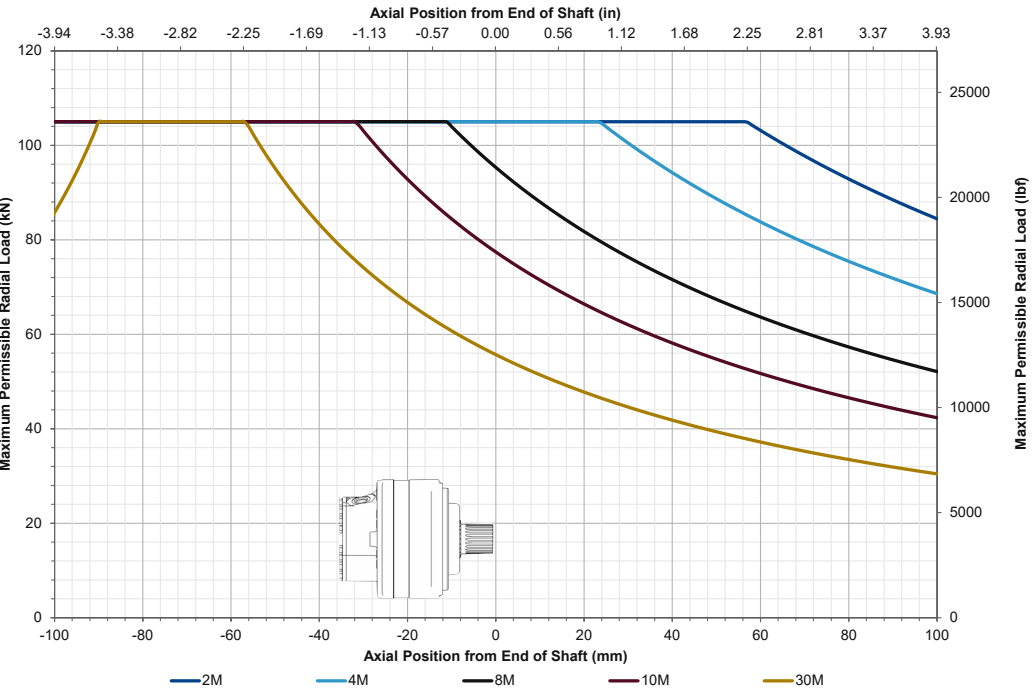


SHAFT MOTOR
PERMISSIBLE DYNAMIC AND STATIC RADIAL LOAD



SHAFT MOTOR
BEARING LIFE UNDER LOAD

The data illustrates the permissible radial load necessary to achieve a specified bearing life. Bearing life is shown in millions of revolutions. Data presented is at 150 bar average pressure, without external axial load.

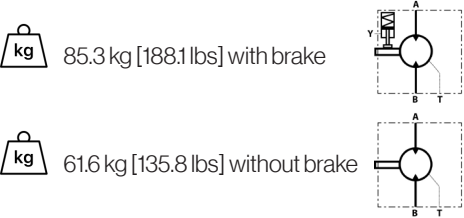


Contact us for alternative duty cycles. All data is based on the standard spline motor output shaft, option A. All data is based on theoretical calculations.

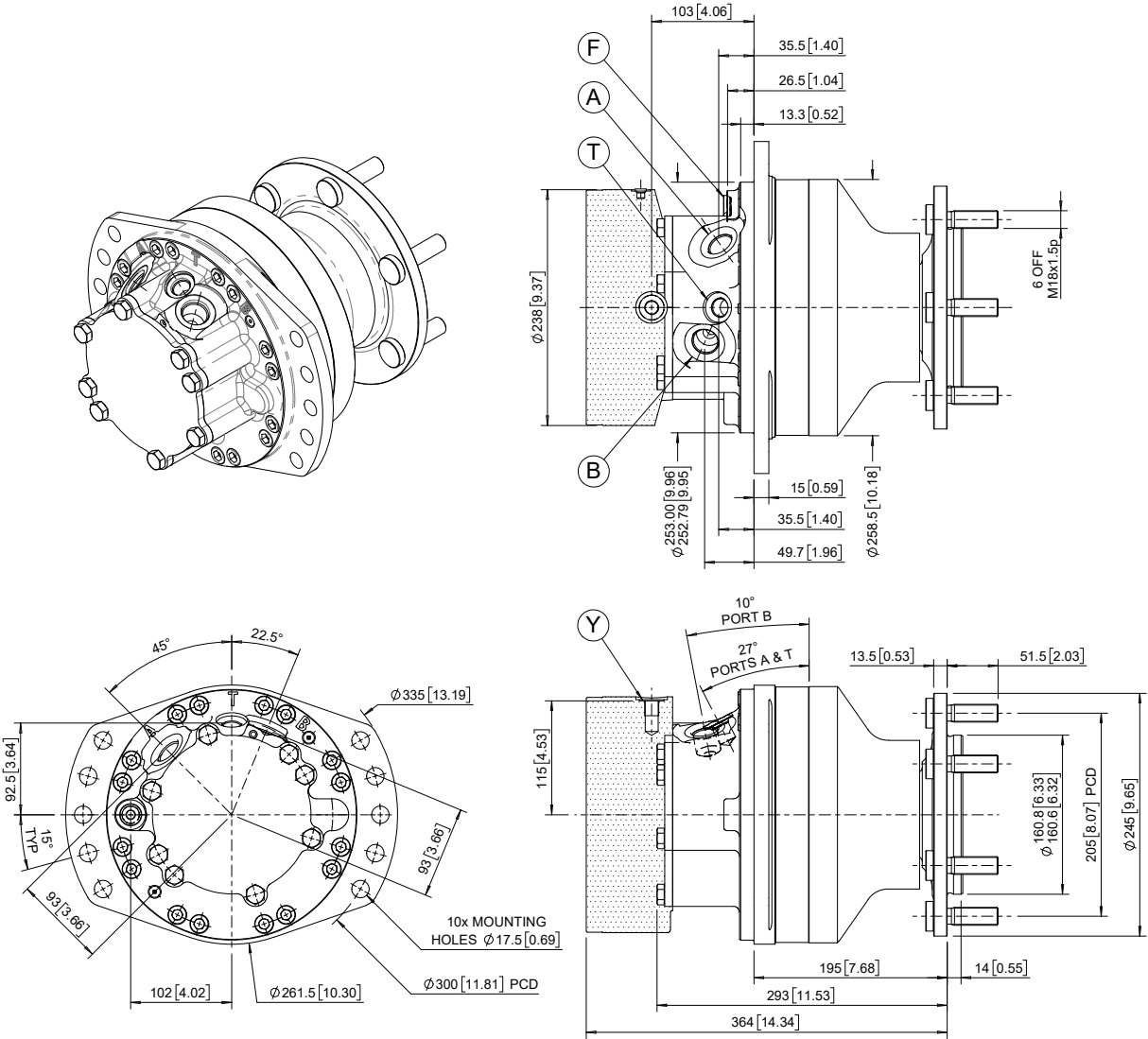
WHEEL MOTOR
SINGLE SPEED OPTION

PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12				REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		W			1	N	L	1R		N	N				00	A3

(For models shown below)



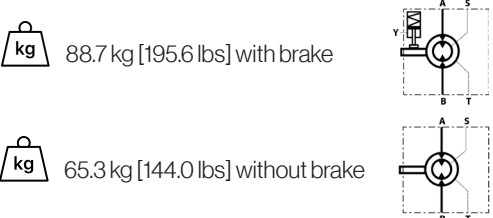
See page 18 for alternate wheel outputs.
See page 22 for hydraulic connection options.



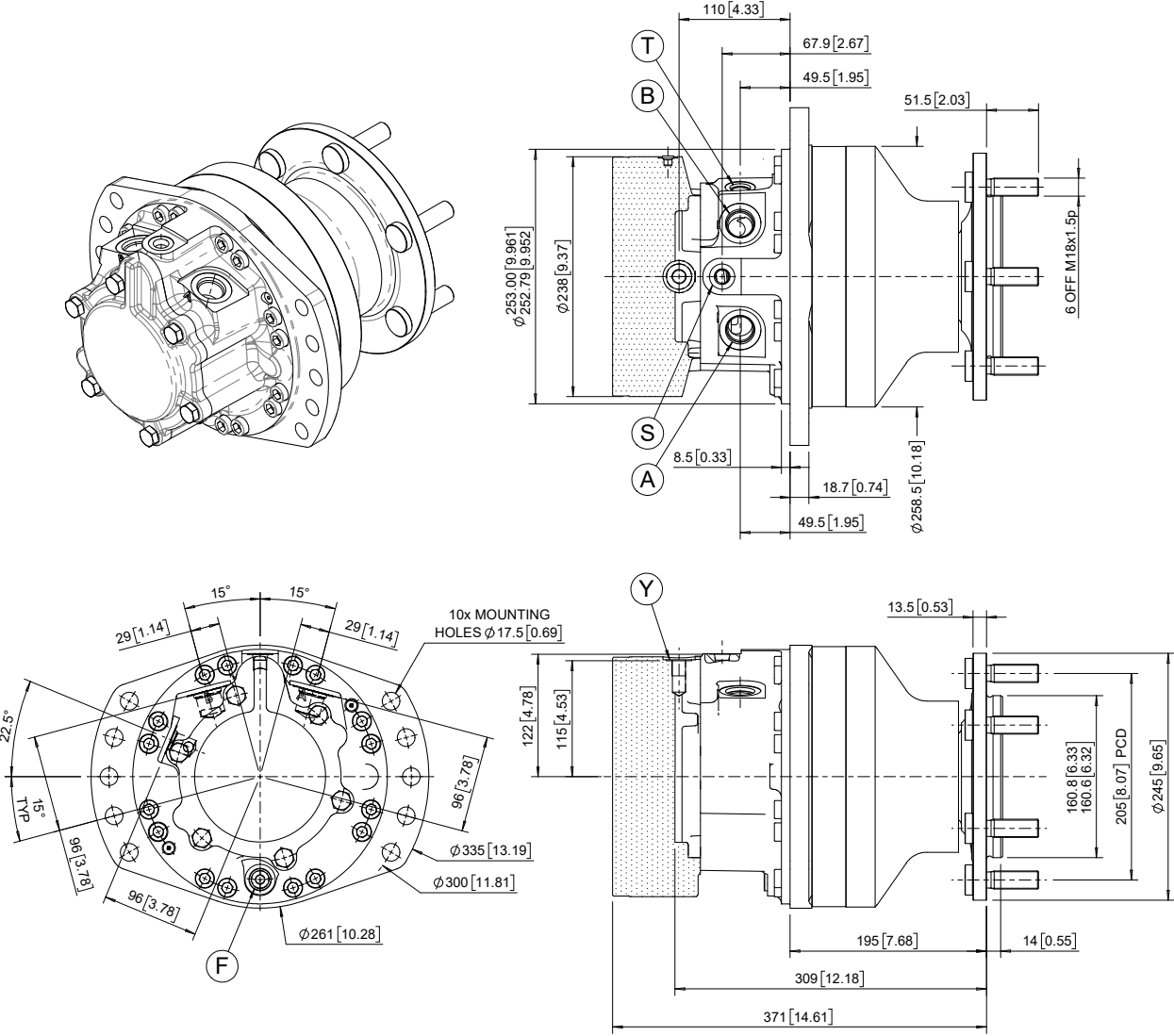
WHEEL MOTOR
TWO SPEED OPTION

PRODUCT 01	CAM 02	FRONT MODULE 03 04 05 06 07					PORT MODULE 08 09 10 11 12				REAR BRAKE 13	OPTIONS 14 15 16			SPECIALS 17	DESIGN 18
XJ08		W			1	N	L			N	N				00	A3

(For models shown below)



See page 18 for alternate wheel outputs.
See page 22 for hydraulic connection options.



WHEEL MOTOR
OUTPUT OPTIONS

PRODUCT
01

XJ08

CAM
02

FRONT MODULE

03

04

05

06

07

PORT MODULE

08

09

10

11

12

REAR BRAKE

13

OPTIONS

14

15

16

SPECIALS

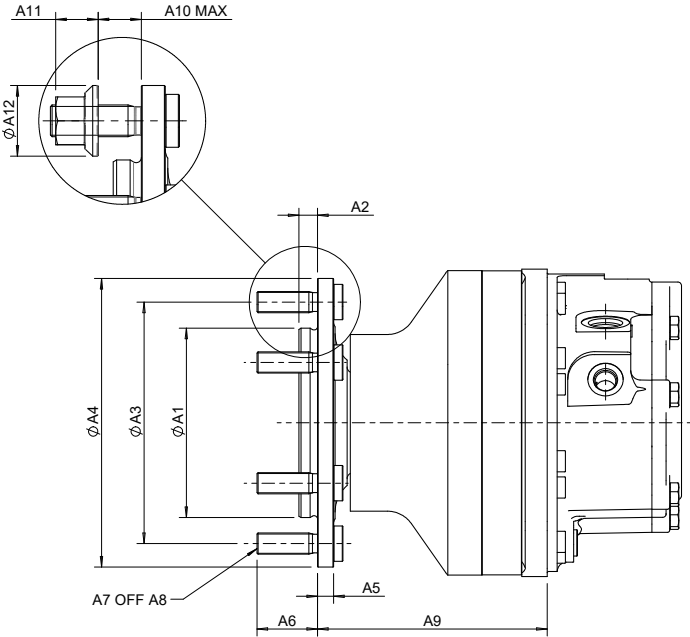
17

00

DESIGN

18

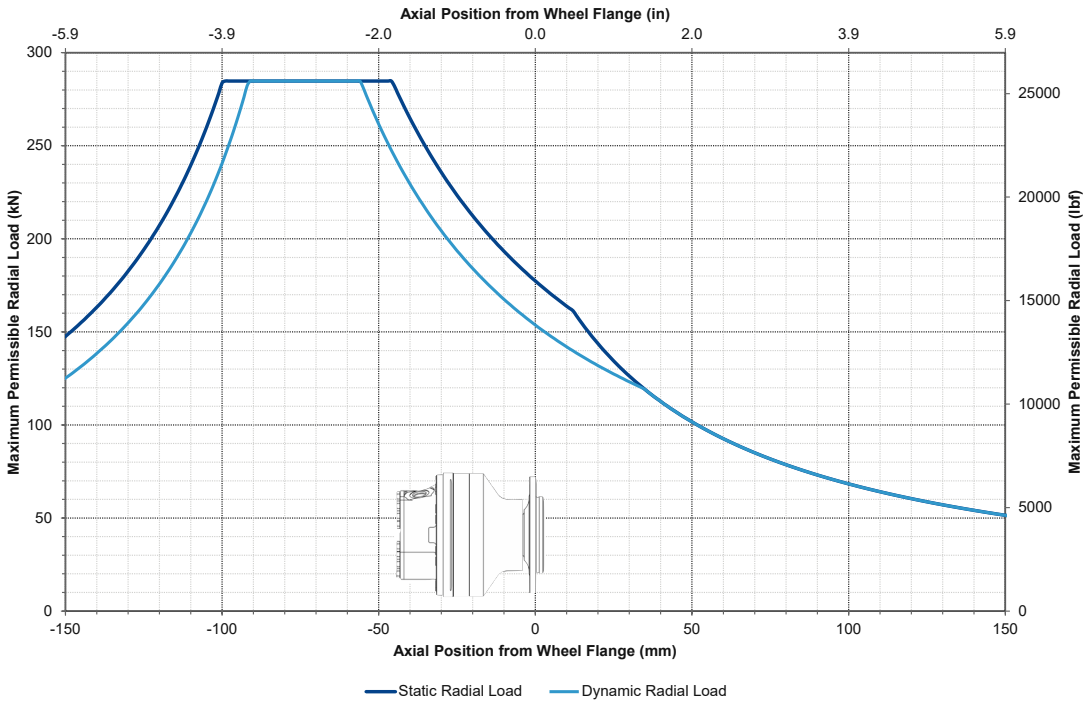
A3



WHEEL MOTOR - OUTPUT SHAFT

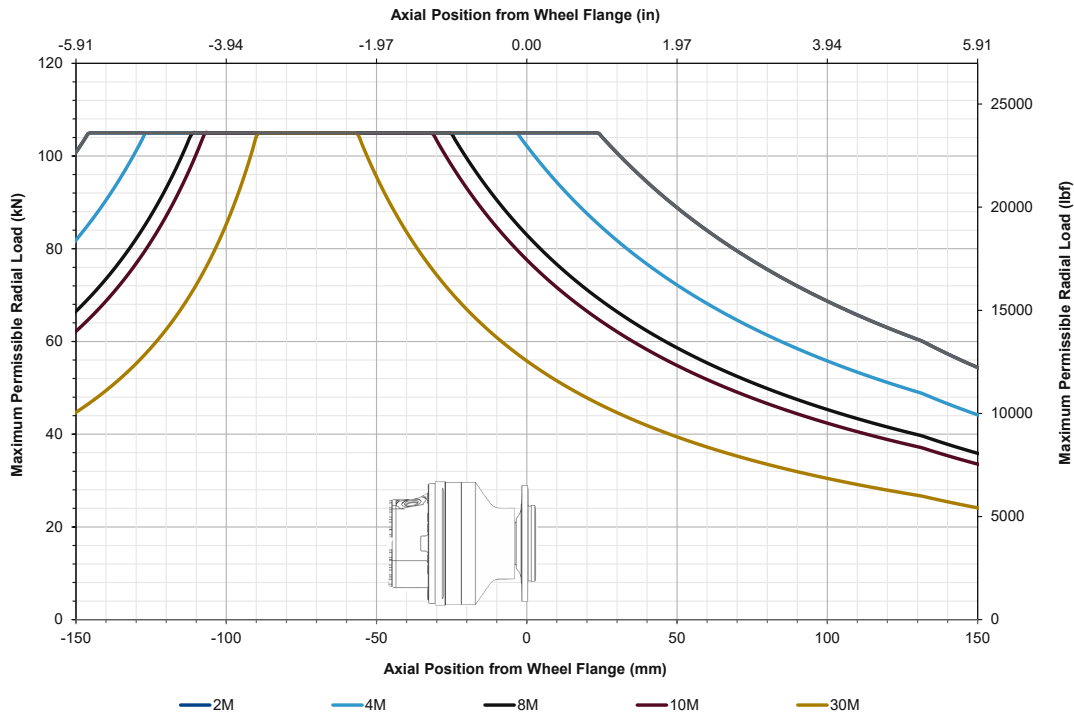
Option		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
03	04												
W	E	160.7 [6.33]	14 [0.55]	205 [8.07]	245 [9.65]	13.5 [0.51]	65 [2.56]	6	M18 x 1.5p	195 [7.68]	23 [0.91]	23 [0.91]	40 [1.57]
W	F	150.9 [5.94]	14 [0.55]	203.2 [8.00]	238 [9.37]	13.5 [0.53]	60 [2.36]	8	M20 x 1.5p	194.1 [7.64]	21 [0.83]	25 [0.98]	45 [1.77]
W	M	220.7 [8.69]	14 [0.55]	275 [10.83]	314 [12.36]	13.5 [0.53]	60 [2.36]	8	M20 x 1.5p	194 [7.64]	21 [0.83]	25 [0.98]	45 [1.77]

WHEEL MOTOR
PERMISSIBLE DYNAMIC AND STATIC RADIAL LOAD



WHEEL MOTOR
BEARING LIFE UNDER LOAD

The data illustrates the permissible radial load necessary to achieve a specified bearing life. Bearing life is shown in millions of revolutions. Data presented is at 150 bar average pressure, without external axial load.



Contact us for alternative duty cycles. All data is based on the standard wheel motor output shaft, option E. All data is based on theoretical calculations

PARKING BRAKES

PRODUCT
01

XJ08

CAM
02

FRONT MODULE

03

04

05

06

07

PORT MODULE

08

09

10

11

12

REAR BRAKE

13

Q

OPTIONS

14

15

16

SPECIALS

17

00

DESIGN

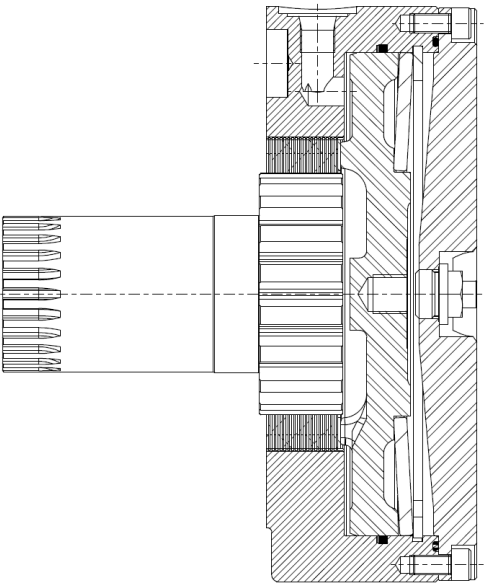
18

A3

The XJ08 multi-disc parking brake is a spring applied, hydraulic release, fail safe brake designed to be used with XJ08 motors in static situations.

The multi-disc brake has a modular design which ensures it can be connected to any variant of the XJ08 motor.

The brake has two hydraulic release ports, one at the top of the housing and one at the bottom. The brake can be manually released by removing the plug in the cover and using an M16x2.0p screw to pull the piston back.



Brake static capacity when new	9,000 Nm [6,638 lbf.ft]
Static capacity after ten dynamic uses	5,850 Nm [4,310 lbf.ft]
Volume to fill	235 cc [14.34 in³]
Volume to fully release brake	94 cc [5.74 in³]
Min. pressure to fully release brake	12 bar [174 psi]
Max. acceptable pressure	30 bar [435 psi]
Time to release brake	< 0.5 seconds ⁽⁴⁾ ⁽⁵⁾
Time to engage brake	< 1 second ⁽⁴⁾ ⁽⁵⁾
Emergency release fitting	M16x2.0p torqued to 110 Nm [81.1 lbf.ft]
Weight	25.5 kg [56.2 lbs]

(1) Do not run in brake, wearing the plates will reduce the static capacity.
(2) Dynamic use of the brake is not recommended and should only be used in emergency situations.
(3) The disc pack should be replaced after ten dynamic uses.
(4) Times may vary depending on fluid viscosity and valves used.
(5) During low temperature applications, flushing the brake housing is recommended to maintain a constant oil viscosity.
All data is based on ISO46 fluid at 40°C/[122°F]. If a different fluid will be used, please consult Rotary Power.

DIRECTION OF SHAFT ROTATION

PRODUCT
01

XJ08

CAM
02

FRONT MODULE

03

04

05

06

07

PORT MODULE

08

09

10

11

12

REAR BRAKE

13

OPTIONS

14

15

16

SPECIALS

17

00

DESIGN

18

A3

PORT MODULE - SPEED AND ROTATION

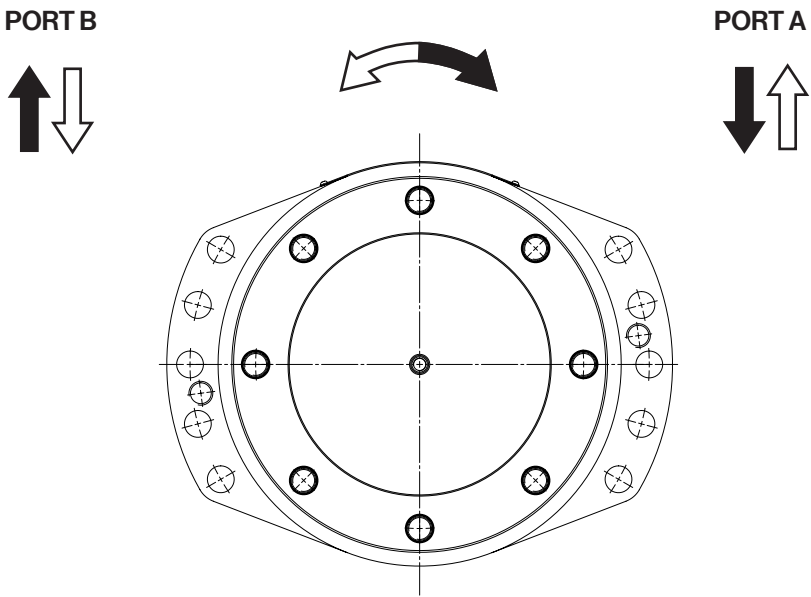
1R	Single speed - flow to port A = CW rotation
RA	Two speed (Ratio 2:1) - flow to port A = CW preferred rotation
LA	Two speed (Ratio 2:1) - flow to port A = ACW preferred rotation

The XJ motor code defines the starting direction of the motor. This is selected by the customer to best suit their application needs.

The starting direction is based on flow being supplied to port A. A single speed motor can have its starting direction reversed by supplying flow to port B.

In two speed motors, pressurising port A is preferred as this prevents the motor from recirculating high pressure oil when shifted into second displacement. It is important to select the correct starting direction of a two speed motor to ensure optimum performance in the required direction.

DIRECTION OF SHAFT ROTATION VIEWED FROM THE SHAFT END



HYDRAULIC CONNECTIONS

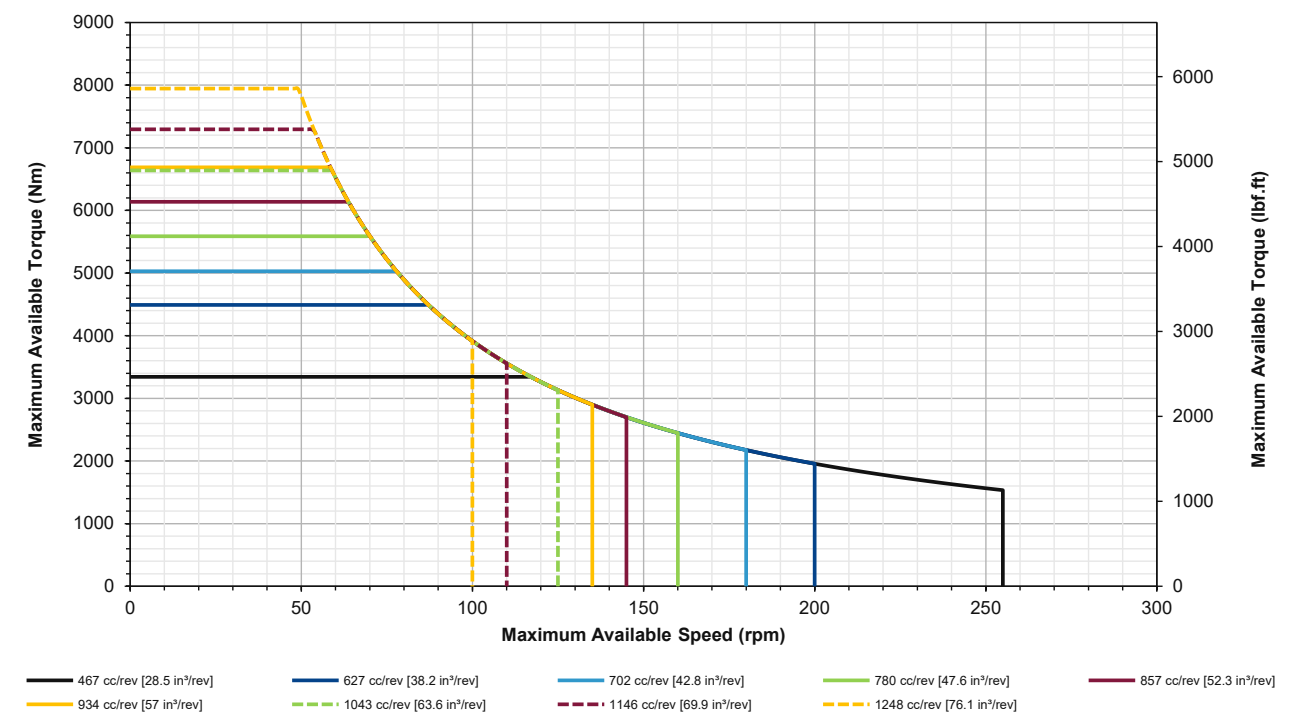
[illegible]

	Port	Power supply		Drain	Speed change	Flushing	Parking brake
		A	B	T	S	F	Y
XJ08 housing options	1	3/4" SAE J514 (1-1/16"-12 UNF)		1/2" SAE J514 (3/4"-16 UNF)	3/8" SAE J514 (9/16"-18 UNF)	1/2" SAE J514 (3/4"-16 UNF)	3/8" SAE J514 (9/16"-18 UNF)
	3	G 3/4" BSPP		G 3/8" BSPP	G 1/4" BSPP	G 3/8" BSPP	G 1/4" BSPP
	4	ISO 6162-2: DN13		1/2" SAE J514 (3/4"-16 UNF)	3/8" SAE J514 (9/16"-18 UNF)	1/2" SAE J514 (3/4"-16 UNF)	3/8" SAE J514 (9/16"-18 UNF)
	5	ISO 6162-2: DN13		G 3/8" BSPP	G 1/4" BSPP	G 3/8" BSPP	G 1/4" BSPP

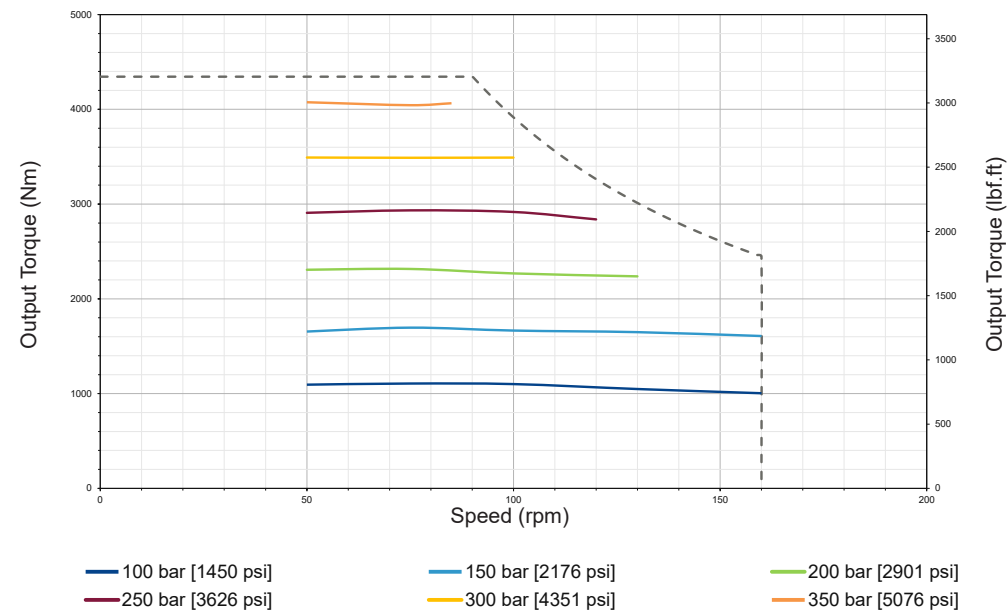
Max. pressures bar [psi]	Standard Displacements	450 [6,527]	6 [87]	30 [435]	6 [87]	30 [435]
	Increased Displacements	400 [5,802]	6 [87]	30 [435]	6 [87]	30 [435]

QUICK SELECTION DIAGRAM

Based on your torque and speed requirements, the diagram below can be used to help determine which displacement best suits your application. Shown for both standard (solid lines) and increased (dashed lines) displacements, the diagram outlines the limits of the motor based on its continuous power rating and maximum pressure.

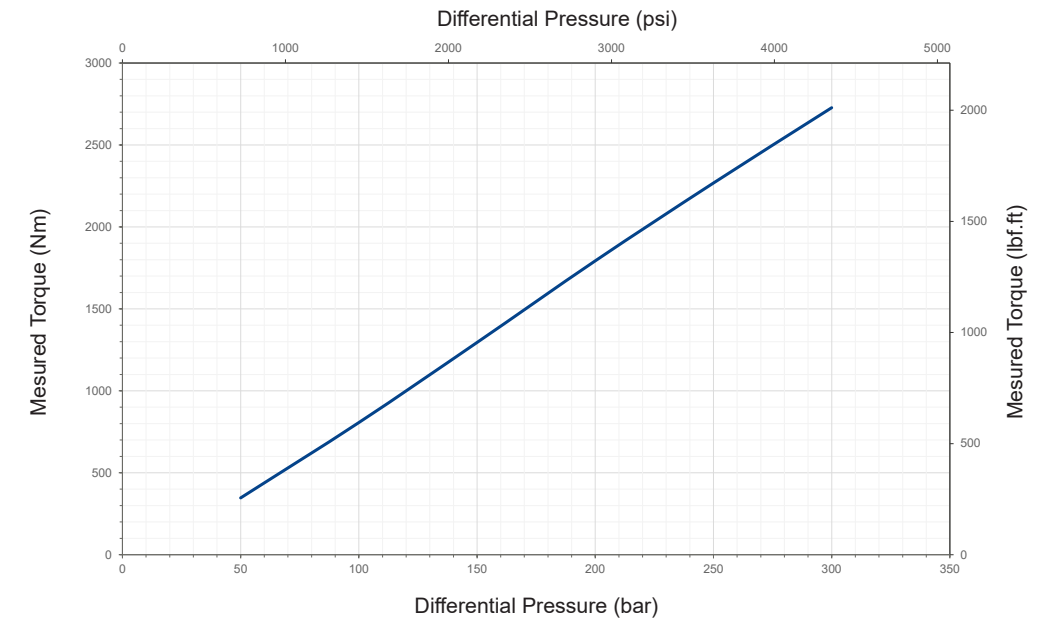


TORQUE OUTPUT
STANDARD DISPLACEMENTS



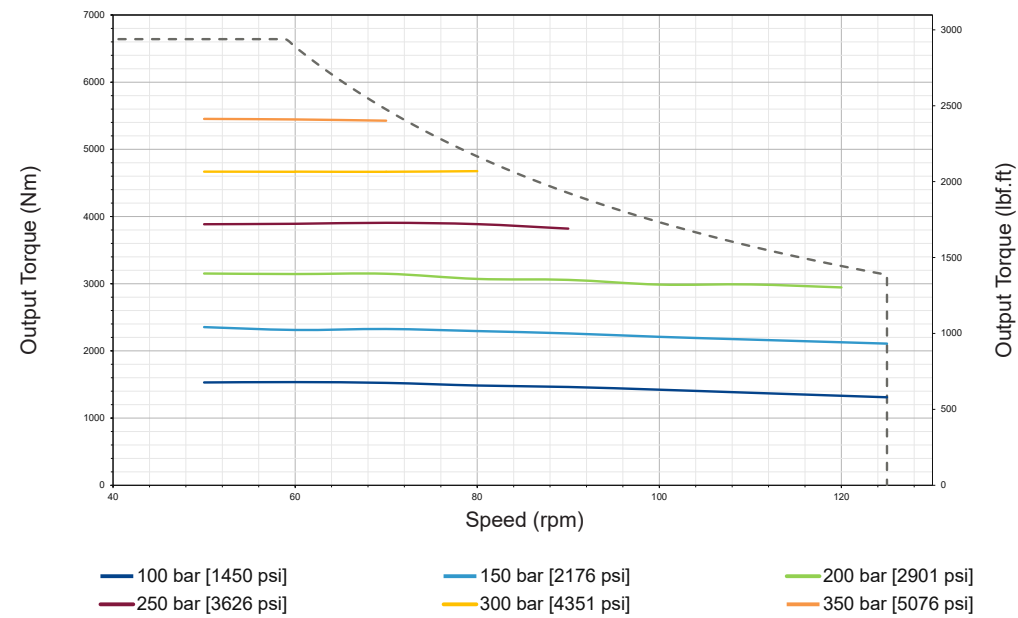
The data presented above was collected using a 780 cc/rev motor with ISO46 fluid at 40°C.
Pressure ranges shown are motor differential pressures (average 20 bar back pressure).

STATIC TORQUE
AVERAGE TORQUE AT ZERO RPM
STANDARD DISPLACEMENTS



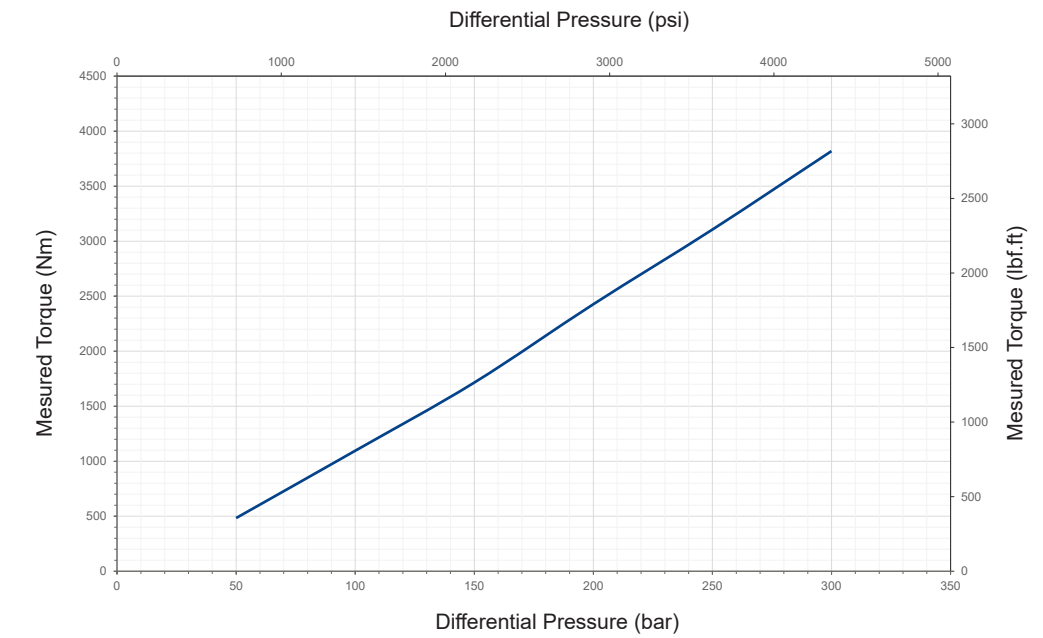
The data presented above was collected using a 780 cc/rev motor with ISO46 fluid at 40°C.
Static torque can vary depending on rotational position of the shaft.

TORQUE OUTPUT
INCREASED DISPLACEMENTS



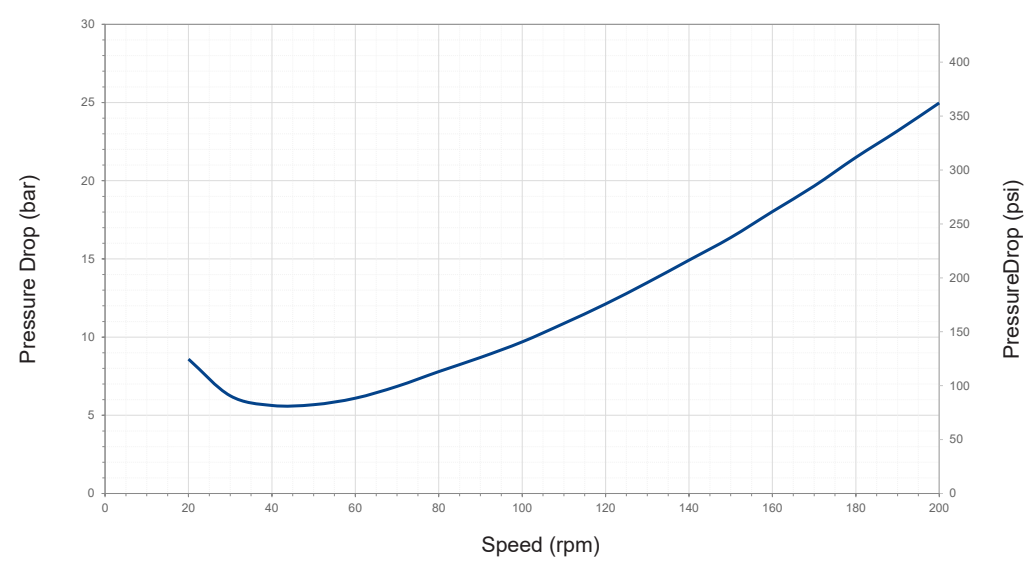
The data presented above was collected using a 1043 cc/rev motor with ISO46 fluid at 40°C.
Pressure ranges shown are motor differential pressures (average 20 bar back pressure).

STATIC TORQUE
AVERAGE TORQUE AT ZERO RPM
INCREASED DISPLACEMENTS



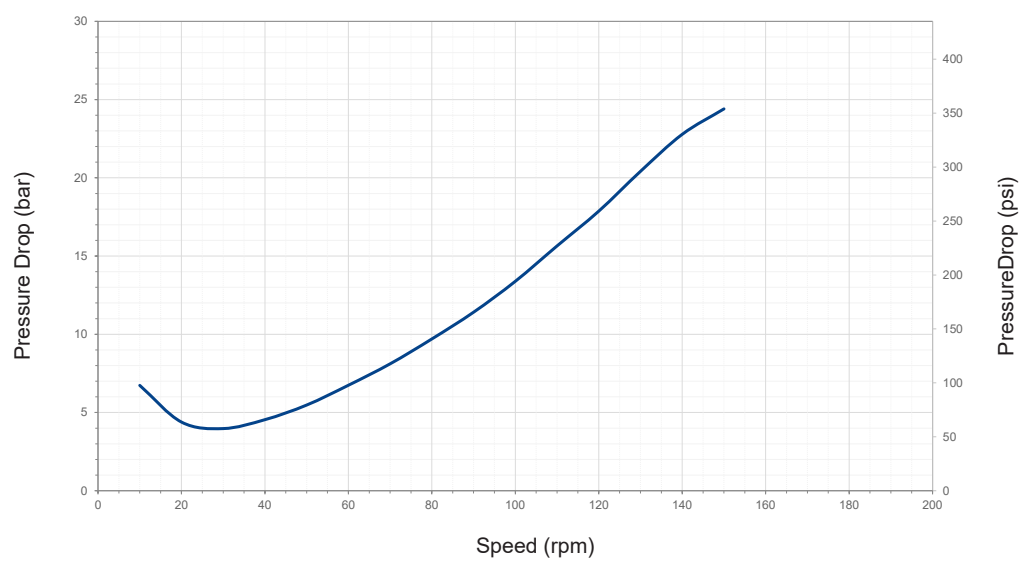
The data presented above was collected using a 1043 cc/rev motor with ISO46 fluid at 40°C. Static torque can vary depending on rotational position of the shaft.

NO LOAD PRESSURE DROP STANDARD DISPLACEMENTS



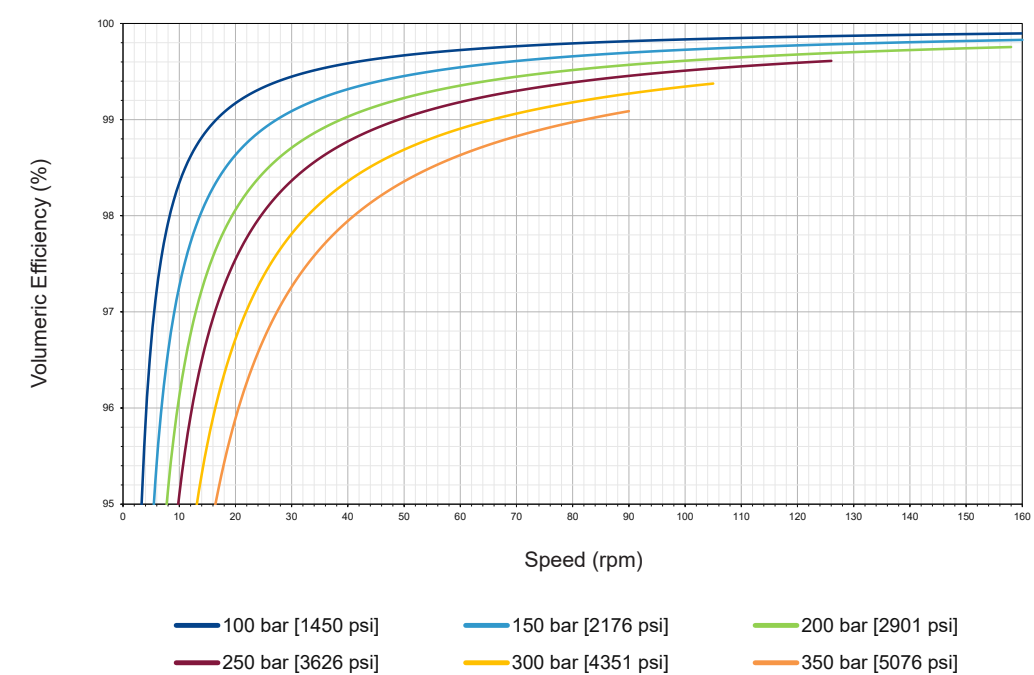
The data presented above was collected using a 780 cc/rev motor with ISO46 fluid at 40°C

NO LOAD PRESSURE DROP INCREASED DISPLACEMENTS



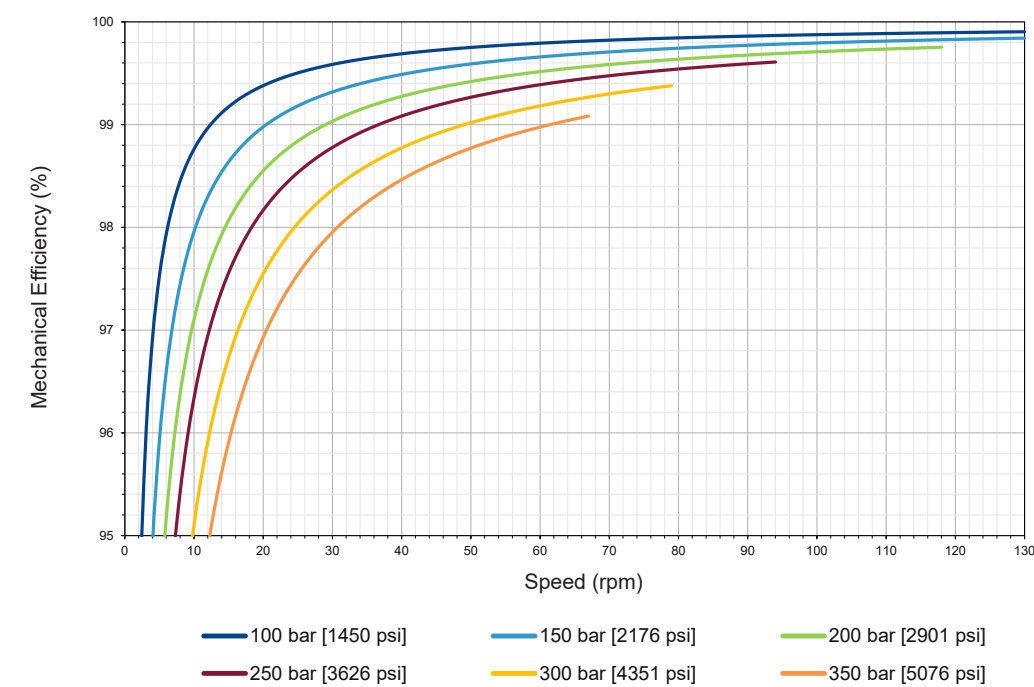
The data presented above was collected using a 1043 cc/rev motor with ISO46 fluid at 40°C

VOLUMETRIC EFFICIENCY STANDARD DISPLACEMENTS



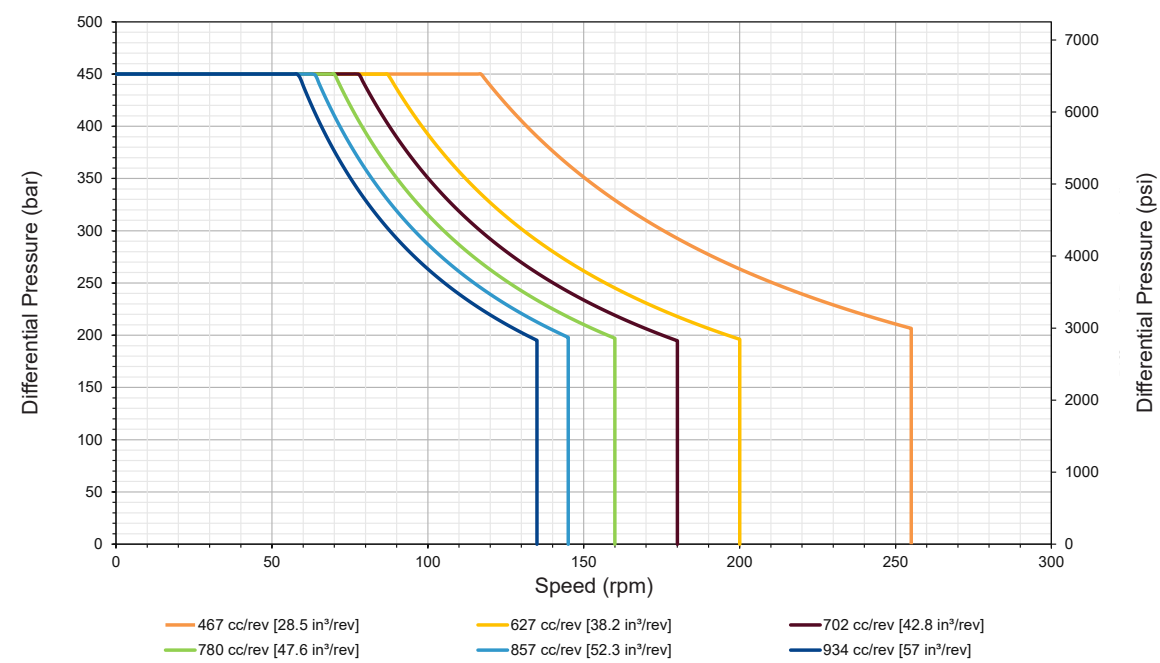
The data presented above was collected using a 780 cc/rev motor with ISO46 fluid at 40°C
Pressure ranges shown are motor differential pressures (average 20 bar back pressure).

VOLUMETRIC EFFICIENCY INCREASED DISPLACEMENTS

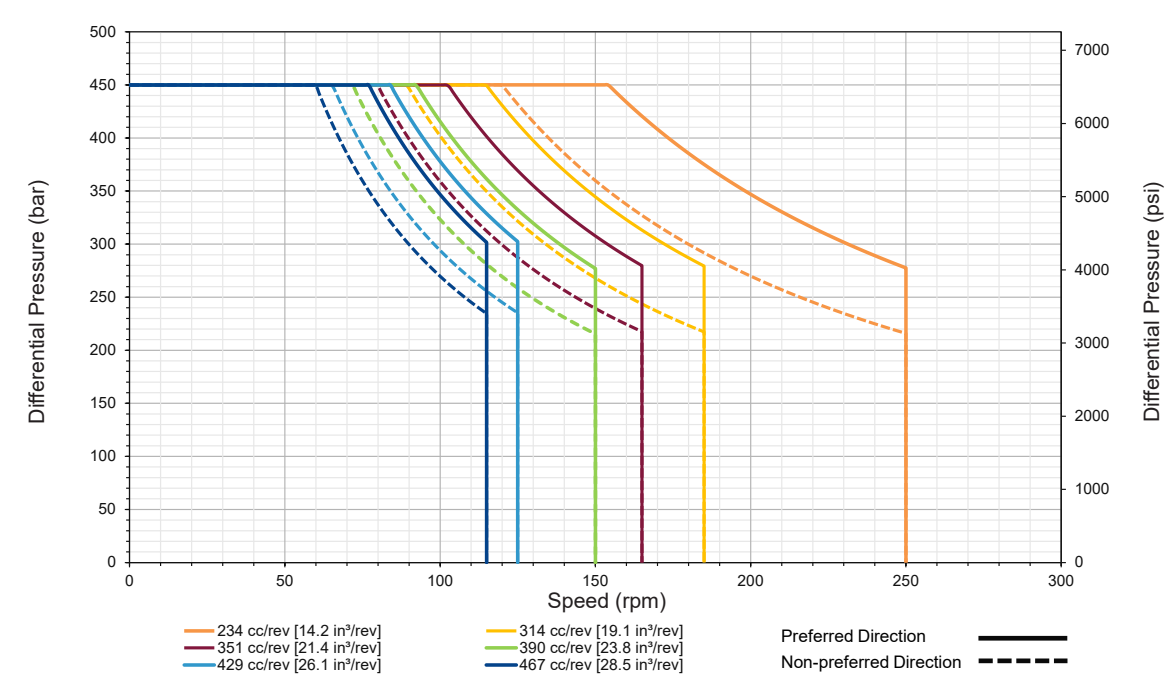


The data presented above was collected using a 1043 cc/rev motor with ISO46 fluid at 40°C
Pressure ranges shown are motor differential pressures (average 20 bar back pressure).

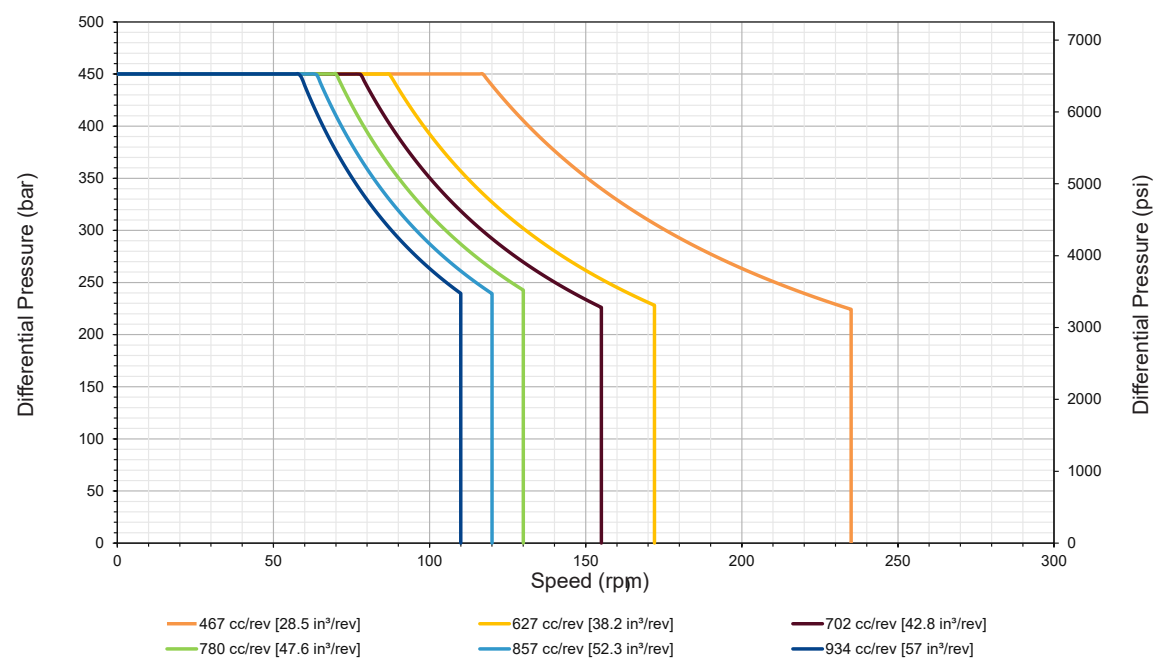
POWER ENVELOPE: STANDARD DISPLACEMENTS
SINGLE SPEED
41kW [55.0 hp] MAX. CONTINUOUS POWER



POWER ENVELOPE: STANDARD DISPLACEMENTS
TWO SPEED - SECOND DISPLACEMENT
27kW [36.2 hp] MAX. CONTINUOUS POWER (PREFERRED DIRECTION)
21kW [28.1 hp] MAX. CONTINUOUS POWER (NON-PREFERRED DIRECTION)

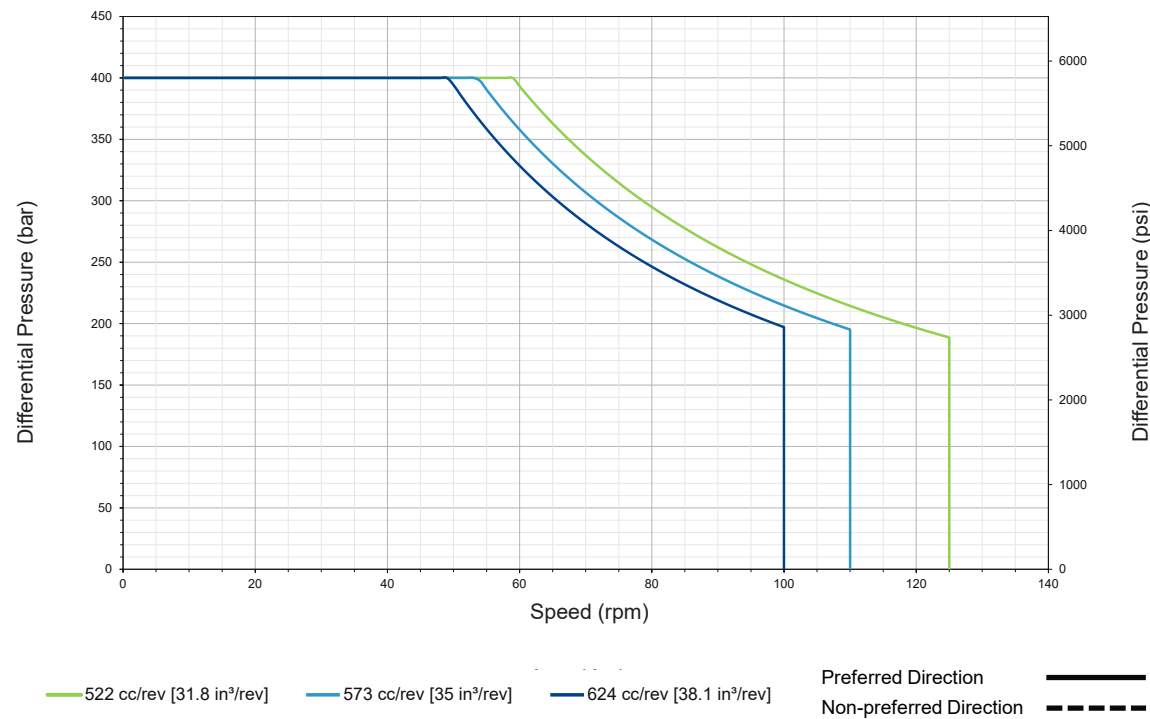


POWER ENVELOPE: STANDARD DISPLACEMENTS
TWO SPEED - FIRST DISPLACEMENT
41kW [55.0 hp] MAX. CONTINUOUS POWER



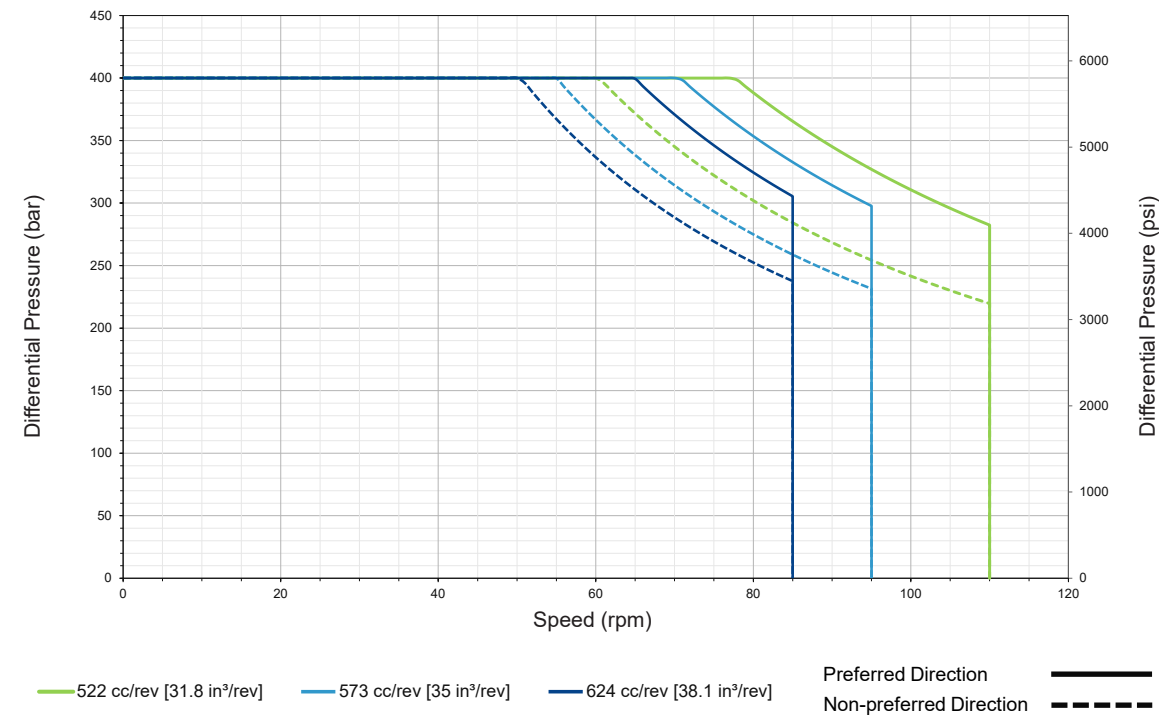
POWER ENVELOPE: INCREASED DISPLACEMENTS

SINGLE SPEED
41kW [55.0 hp] MAX. CONTINUOUS POWER



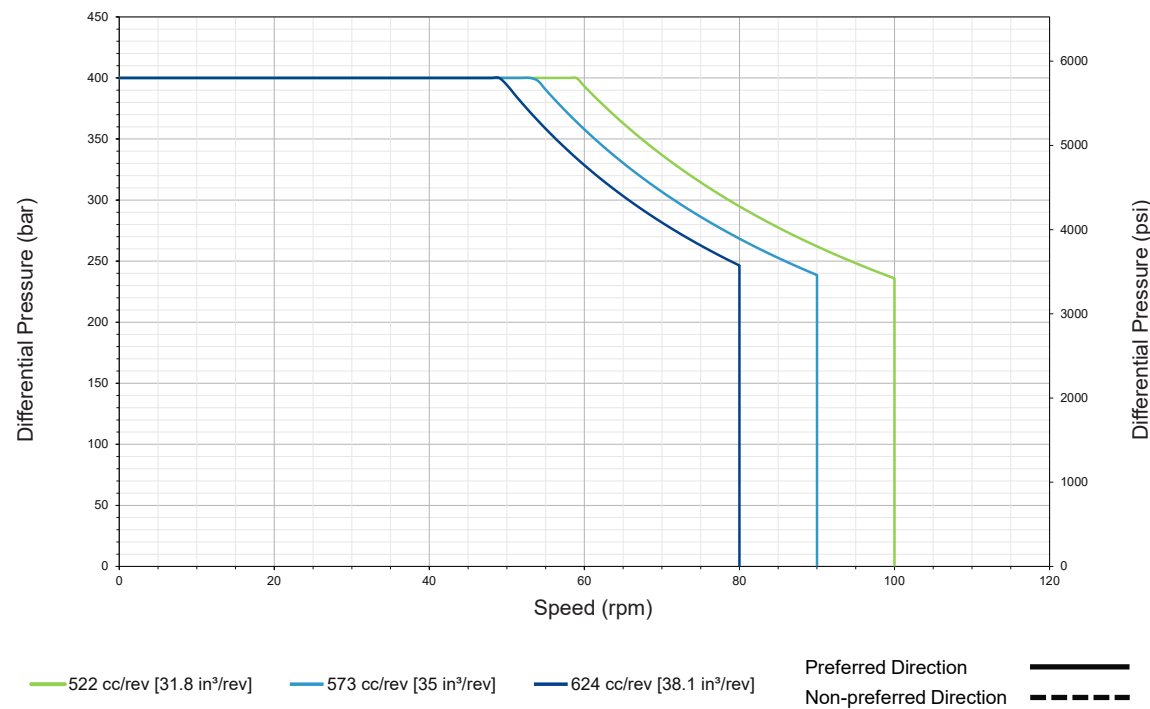
POWER ENVELOPE: INCREASED DISPLACEMENTS

TWO SPEED - SECOND DISPLACEMENT
27kW [36.2 hp] MAX. CONTINUOUS POWER (PREFERRED DIRECTION)
21kW [28.1 hp] MAX. CONTINUOUS POWER (NON-PREFERRED DIRECTION)

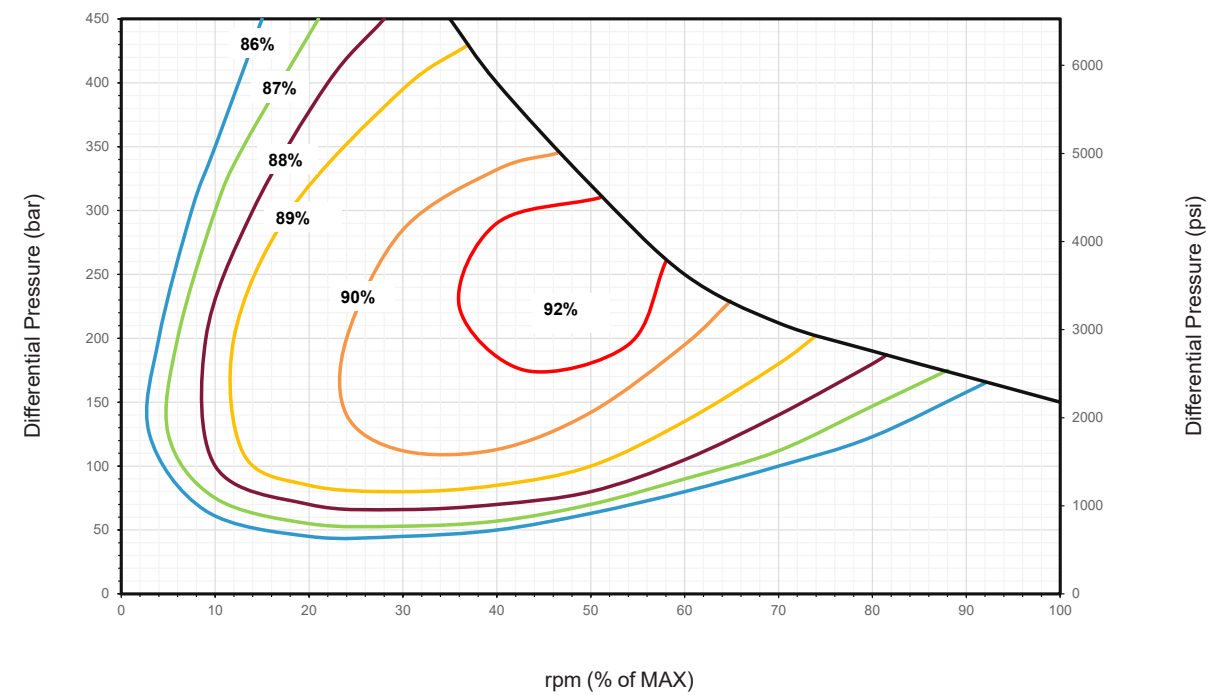


POWER ENVELOPE: INCREASED DISPLACEMENTS

TWO SPEED - FIRST DISPLACEMENT
41kW [55.0 hp] MAX. CONTINUOUS POWER



OVERALL EFFICIENCY
STANDARD DISPLACEMENTS



The data presented above was collected using a single speed 780 cc/rev motor with ISO46 fluid at 40°C

CALCULATIONS

Output torque (Nm) =
$$\frac{\text{Motor displacement (cc)} \times \text{delta pressure (bar)} \times \eta_m}{20\pi}$$

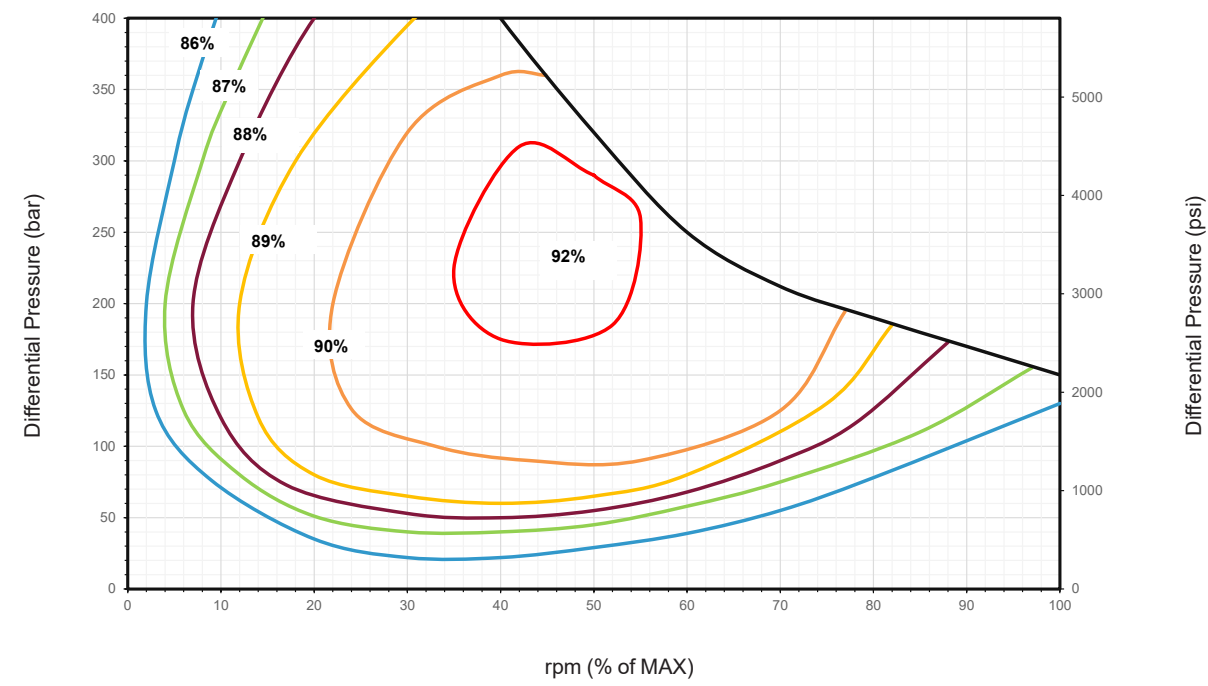
Flow (lpm) =
$$\frac{\text{Motor displacement (cc)} \times \text{rotational speed (rpm)}}{1000 \times \eta_v}$$

Output power (kW) =
$$\frac{\text{Output torque (Nm)} \times \text{rotational speed (rpm)}}{9,550}$$

Where:
 η_m = Mechanical efficiency
 η_v = Volumetric efficiency

For approximate estimates of performance use:
 $\eta_m = 0.95$
 $\eta_v = 0.95$

OVERALL EFFICIENCY
INCREASED DISPLACEMENTS



The data presented above was collected using a single speed 1,043 cc/rev motor with ISO46 fluid at 40°C

CONVERSIONS

$\text{Nm} \rightarrow \text{lbf.ft} = \times 0.7376$

$\text{N} \rightarrow \text{lbf} = \times 0.2248$

$\text{bar} \rightarrow \text{psi} = \times 14.5038$

$\text{cc} \rightarrow \text{in}^3 = \times 0.061$

$\text{lpm} \rightarrow \text{U.S. gpm} = \times 0.2641$

$\text{kW} \rightarrow \text{hp} = \times 1.341$

$\text{kg} \rightarrow \text{lb} = \times 2.2046$

[illegible]

This image shows a full page of white paper with horizontal blue ruling lines. The word "NOTES" is printed in bold black capital letters at the top left corner. A vertical blue bar is located on the far left edge of the page.

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