2.3

V90C SERIES

Swash-plate Type Axial Piston
Variable Displacement Double Pump

V90C series axial piston pump is a high pressure closed circuit double pump, which can meet the application requirements of customers for harsh working conditions such as high pressure, high rotational speed and frequent impact.

Suitable for a high-pressure closed circuit

Size:	23	47	56
Rated pressure (bar):	250	420	420
Max. pressure (bar):	300	450	450

Co te ts

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Features

- Swashplate design axial piston pump for traveling machinery applications such as skid steer loader.
- Compact size, small installation space
- Various control modes such as hydraulic control, electronic control and manual control.
- Combination of DA control valve and emergency shut-of valve, etc.
- With pressure gauge oil port MA and MB.

Technical data

Technical data

Type introduction

V90	C		47	E1	A	N	/	R	B4	3	K	B1	E	-	S

Axial piston unit

	Swashplate design, variable	V90

Operating mode

	Pump, closed circuit	C

Variable mechanism

		23	47	56	Code
	With servo piston	●	●	●	Blank
	Without servo piston manual variable		●		S

Size

	Size	23	47	56

Control mode

		23	47	56	Code
	Proportional control, electric U = 12 V DC	●	●	●	E1
	Proportional control, electric U = 24 V DC	●	●	●	E2
	Mechanical servo control		●	○	H1
	Hydraulic control direct operated – optimized for hydraulic control	●	●	○	H3
	Manual direct displacement control		●		H5

Remark V90C47 when selecting without servo piston (manual variable), please choose manual direct variable control as the control method.

DA control valve

		23	47	56	Code
	Without swivel DA control valve	●	●	●	Blank
	Swivel DA control valve		●	○	A

Remark V90C47 when selecting without servo piston (manual variable), without swivel DA control valve.
The DA valve and the emergency brake valve cannot be selected simultaneously.

Oil Port Specifications and Seals

	Seals	A/B Port Specifications	S Port Specifications	Port Specifications (excluding A/B/S ports)	23	47	56	Code
	Sealed at room temperature	ISO 11926	ISO 11926	ISO 11926	●	●	●	N
		ISO 1179	ISO 1179	ISO 1179	●			E

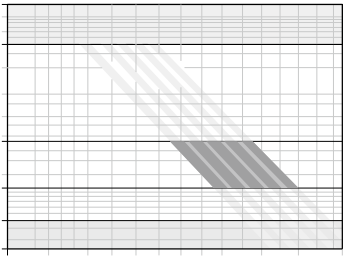
Rotation

	Right hand (clockwise)	R
	Left hand (counter-clockwise)	L

Boost pu p a d rotary group co figurat o

T roug dr ve

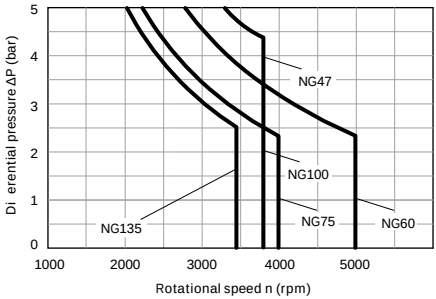
Hydraulic fuid



Hydraulic fuid

Finer fltration improves the cleanliness of the hydraulic fuid, thereby extending the life of rotating parts. A cleanliness of at least 20/18/15 (ISO 4406) should be maintained. When the viscosity of the hydraulic fuid is less than 10mm²/s (e.g. due to high temperatures during short-term operation, a cleanliness level of at least 19/17/14 (ISO 4406) is required.

Permissible pressure loading



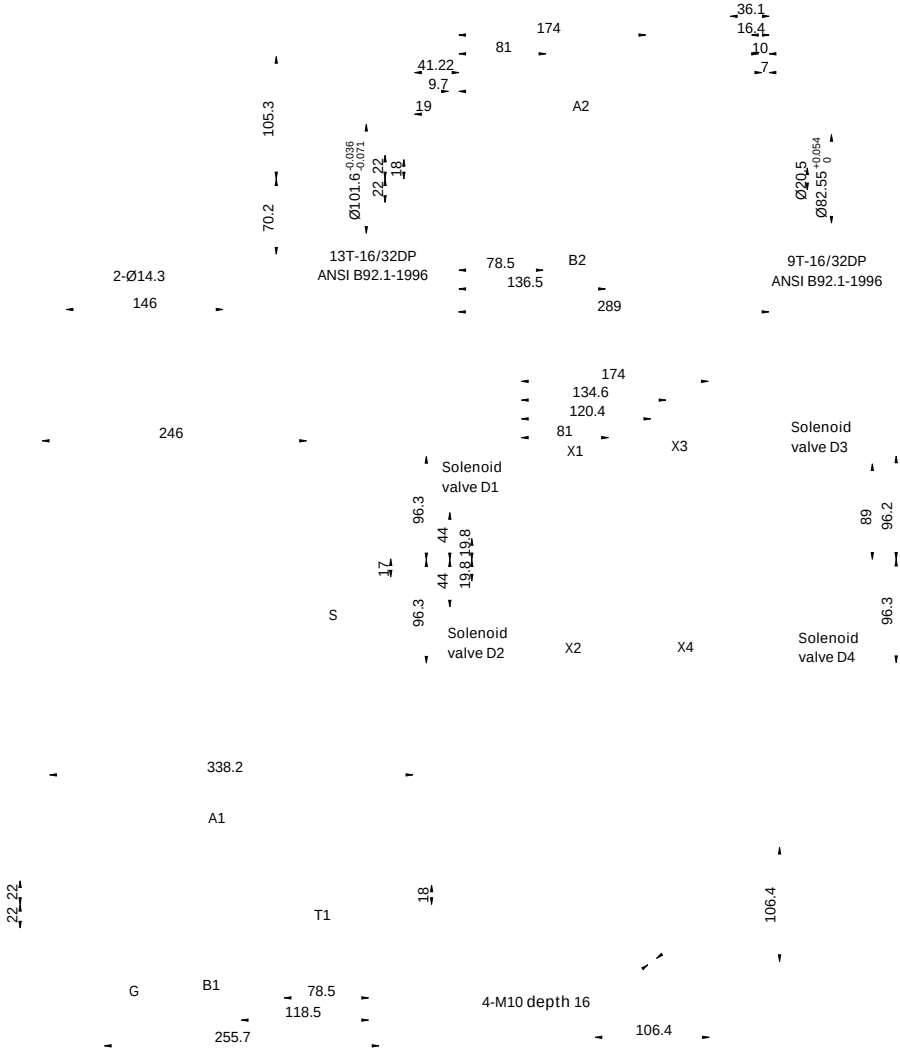
When using mineral oil based hydraulic fuid, refer to the left diagram for the range of pressures used for oil seals, please contact us if other hydraulic fuids are used.

The service life of the oil seal is affected by the rotational speed and the pressure difference between the inside and outside of the seal, in addition to the hydraulic oil and temperature.

Installation size

V90C23 Installation size

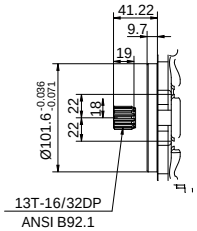
·Proportional control



Installation size

·V90C23 Port details

Port	Port use	Standard	Oil Port Specification (thread depth)	Maximum pressure (bar)
A1, B1	Work lines	ISO 1179-1	G 1/2 depth 15	250
A2, B2	Work lines	ISO 1179-1	G 1/2 depth 15	250
S1, S2	Oil suction line	ISO 1179-1	G 1/2 depth 15	5
T1	Oil drain line	ISO 1179-1	G 1/2 depth 15	3
T2	Oil drain line	ISO 1179-1	G 1/2 depth 15	3
R	Exhaust port	ISO 1179-1	G 1/4 depth 12.5	3
X1, X2, X3, X4	Control cavity pressure	ISO 1179-1	G 1/4 depth 12.5	40
G	Top-up pressure	ISO 1179-1	G 1/4 depth 12.5	40


41.22
9.7
19
Ø101.6 -0.036 -0.071
22.22
18
13T-16/32DP
ANSI B92.1

V90C47 Installation size

Mwchanical zero adjusment

Charge pressure relief valve

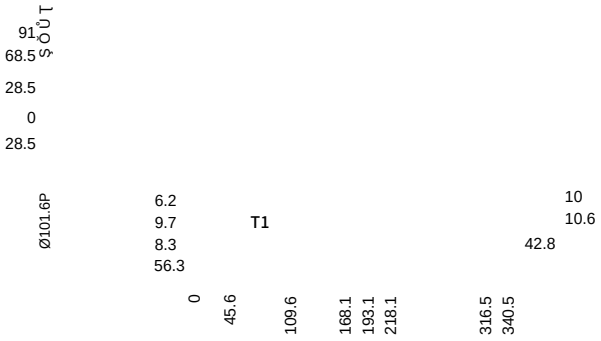
High pressure relief valve

Installation size

Installation size

V90C47 Installation size

· Mechanical servo control



Installation size

V90C47 Port details

· Mechanical servo control

Port	**Port Name**	**Standard**	Oil Port Specif cation (thread depth)
A, B	Working port	ISO 11926	1 1/16-12UN-2B depth 20
T1	Drain port	ISO 11926	1 1/16-12UN-2B depth 20
R	Air bleed port	ISO 11926	9/16-18UNF-2B depth 13
X1 X2 X3 X4	Control pressure port	ISO 11926	9/16-18UNF-2B depth 13
G	Boost pressure port inlet	ISO 11926	3/4-16UNF-2B depth 15
MA1 MB1 MA2 MB2	Pressure port	ISO 11926	9/16-18UNF-2B depth 13

V90C47 Control principle

· Proportional control

R T1 MB1 B B MB2

▲
▼

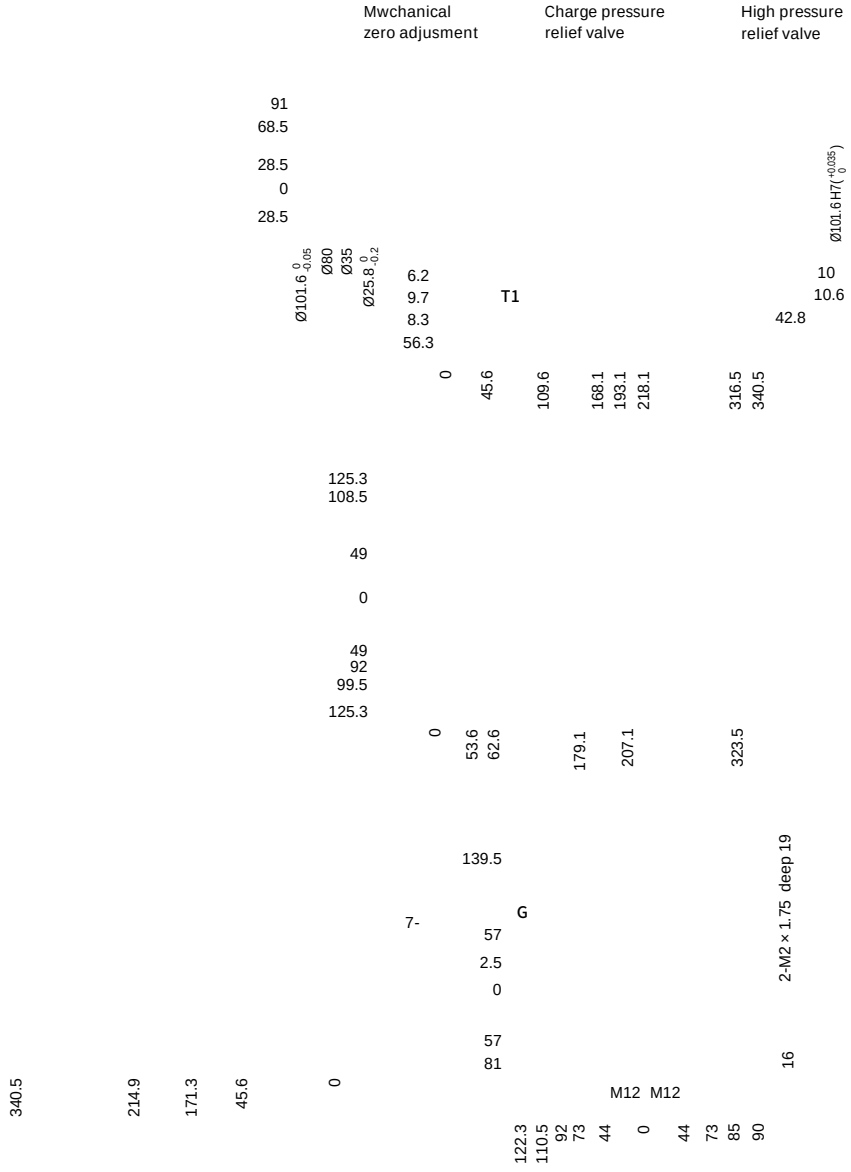
X1 X2 MA1 A G A MA2 X3 X4

Direction of rotation	Clockwise				Counter-clockwise			
	1st pump		2nd pump		1st pump		2nd pump	
Start the electromagnet	D1	D2	D3	D4	D1	D2	D3	D4
Control pressure	X1	X2	X3	X4	X1	X2	X3	X4
Flow direction	A to B	B to A	B to A	A to B	B to A	A to B	A to B	B to A
Working pressure	MB1	MA1	MA2	MB2	MA1	MB1	MB2	MA2

Installation size

V90C47 Installation size

· Proportional control



Installation size

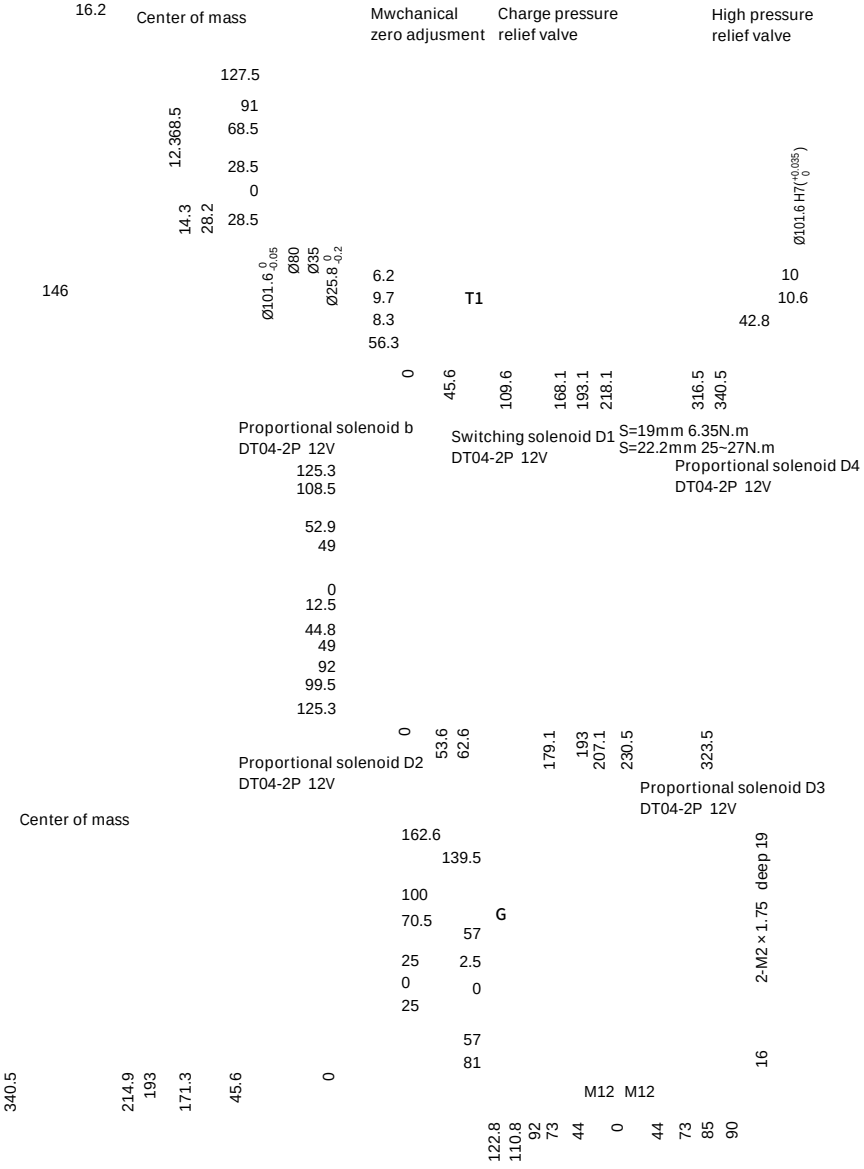
V90C47 Control principle

· Proportional control (with emergency brake valve)

Installation size

V90C47 Installation size

· Proportional control (with emergency brake valve)



Installation size

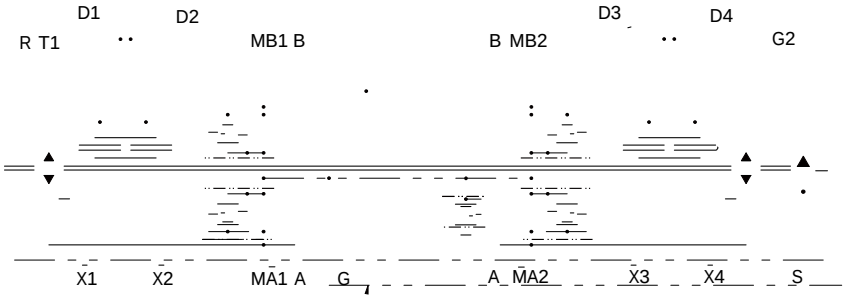
V90C47 Port details

· Proportional control (with emergency brake valve)

Port	**Port Name**	**Standard**	Oil Port Speci f cation (thread depth)
A, B	Working port	ISO 11926	1 1/16-12UN-2B depth 20
T1	Drain port	ISO 11926	1 1/16-12UN-2B depth 20
R	Air bleed port	ISO 11926	9/16-18UNF-2B depth 13
X1 X2 X3 X4	Control pressure port	ISO 11926	9/16-18UNF-2B depth 13
G	Boost pressure port inlet	ISO 11926	3/4-16UNF-2B depth 15
Y_{BR}	Pressure port	ISO 11926	9/16-18UNF-2B depth 13
P_S	Pressure port	ISO 11926	9/16-18UNF-2B depth 13
MA1 MB1 MA2 MB2	Pressure port	ISO 11926	9/16-18UNF-2B depth 13

V90C47 Control principle

· Proportional control (with oil replenishment pump)



Poping by customer

Direction of rotation	Clockwise				Counter-clockwise			
	1st pump		2nd pump		1st pump		2nd pump	
Start the electromagnet	D1	D2	D3	D4	D1	D2	D3	D4
Control pressure	X1	X2	X3	X4	X1	X2	X3	X4
Flow direction	A to B	B to A	B to A	A to B	B to A	A to B	A to B	B to A
Working pressure	MB1	MA1	MA2	MB2	MA1	MB1	MB2	MA2

Installation size

V90C47 Installation size

· Proportional control (with oil replenishment pump)

V90CS47

Installation size

V90CS47 Installation size

· Manual direct displacement control

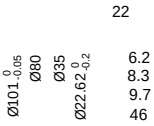
Installation size

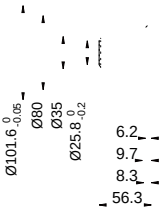
V90CS47 Port details

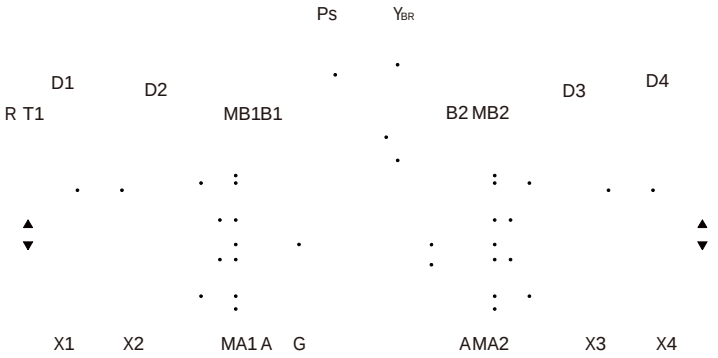
· Manual direct displacement control

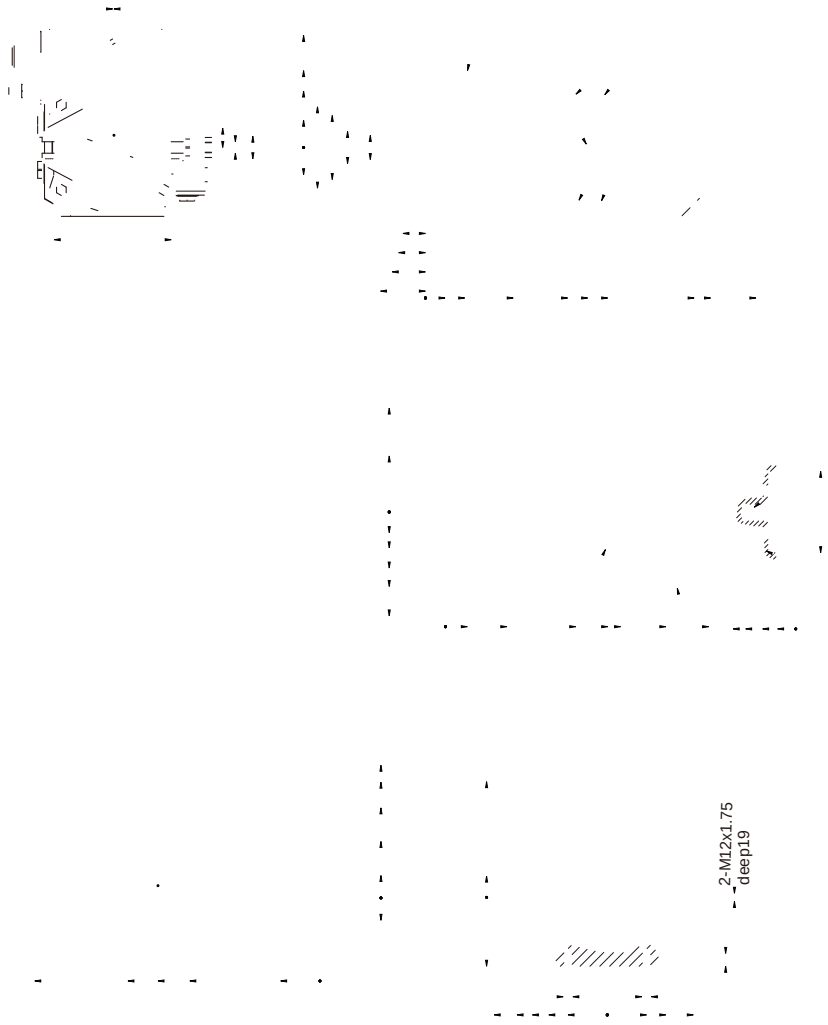
Port	**Port Name**	**Standard**	Oil Port Speci f cation (thread depth)
A, B	Working port	ISO 11926	1 1/16-12UN-2B depth 20
T1	Drain port	ISO 11926	1 1/16-12UN-2B depth 20
G	Boost pressure port inlet	ISO 11926	3/4-16UNF-2B depth 15
MA1 MB1 MA2 MB2	Pressure port	ISO 11926	9/16-18UNF-2B depth 13
PS1 PS2	Boost pressure port	ISO 11926	9/16-18UNF-2B depth 13

Installation size






Ps
YBR
D1
D2
D3
D4
R T1
MB1B1
B2 MB2
X1
X2
MA1 A
G
AMA2
X3
X4


2-M12x1.75
deep19

Installation size

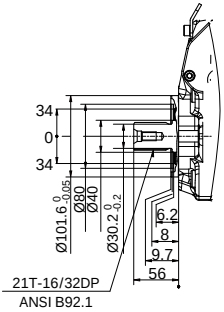
V90C56 Port details

· Proportional control (with emergency brake valve)

Port	**Port Name**	**Standard**	Oil Port Speci f cation (thread depth)
A, B	Working port	ISO 11926	1 1/16-12UN-2B depth 20
T1	Drain port	ISO 11926	1 1/16-12UN-2B depth 20
R	Air bleed port	ISO 11926	9/16-18UNF-2B depth 13
X1 X2 X3 X4	Control pressure port	ISO 11926	9/16-18UNF-2B depth 13
G	Boost pressure port inleISO 11926		3/4-16UNF-2B depth 15
Y_{BR}	Pressure port	ISO 11926	9/16-18UNF-2B depth 13
P_S	Pressure port	ISO 11926	9/16-18UNF-2B depth 13
MA1 MB1 MA2 MB2	Pressure port	ISO 11926	9/16-18UNF-2B depth 13

Installation size

· V90C56 shaft extension type



"B6" type spline shaft

ANSI B92.1

1 3/8 21T 16/32 DP

· V90C56 through shaft drive

"B1" type through drive