

Parking Brakes

Spring Applied Hydraulic Released
For High Torque Piston Motors

Content	Page
GENERAL Introduction	3
Brakes data	4
Brake selection	5
Radial piston motor coupling	5
B0190C Dimensions and ordering information	6
B0300D Dimensions and ordering information	7
B0450E Dimensions and ordering information	8
B0700F Dimensions and ordering information	9
B1100G Dimensions and ordering information	10
B1800H Dimensions and ordering information	11
B2800I Dimensions and ordering information	12
B4500L Dimensions and ordering information	13
B7000M Dimensions and ordering information	14
Customizations	15



WARNING – USER RESPONSIBILITY

This document and other information from Calzoni Hydraulics provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Calzoni Hydraulics.

To the extent that Calzoni Hydraulics provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Introduction

Calzoni "B" brake series is a "spring applied – hydraulic release" multi-disc wet parking brake, engineered for those applications where it is absolutely necessary to hold the system under an external torque. The maximum braking torque is achieved when the brake is not fed.

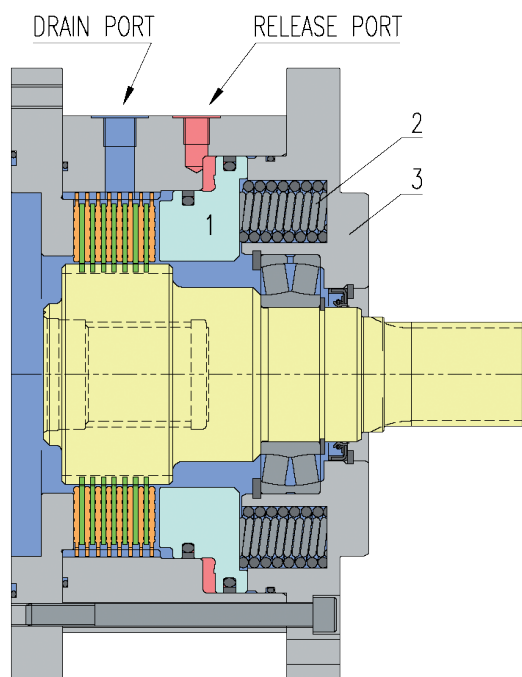
Typical characteristics of Calzoni hydraulic negative brakes are:

- high reliability and long lifetime thanks to thorough quality control and product testing;
- direct coupling to MR and MRD/MRV radial piston motors series;
- compact design;
- no oil refilling problem;

Hydraulic motors usually have a leakage connection, which means that a hydraulic motor can never hold a load for a long period without a pressure feeding. So, a mechanical brake is used to hold the load on the motor in place.

The brake is operated by a single-acting piston (1) with opposing springs (2) between the piston and the front cover (3). During load braking and stop, the springs press against the piston blocking the discs.

Hydraulic pressure is required to release or "hold off" the brake and during normal operation the brake is pressurized in the released position: any function which reduces the hydraulic system below the release pressure of the brake will cause the brake to be applied.

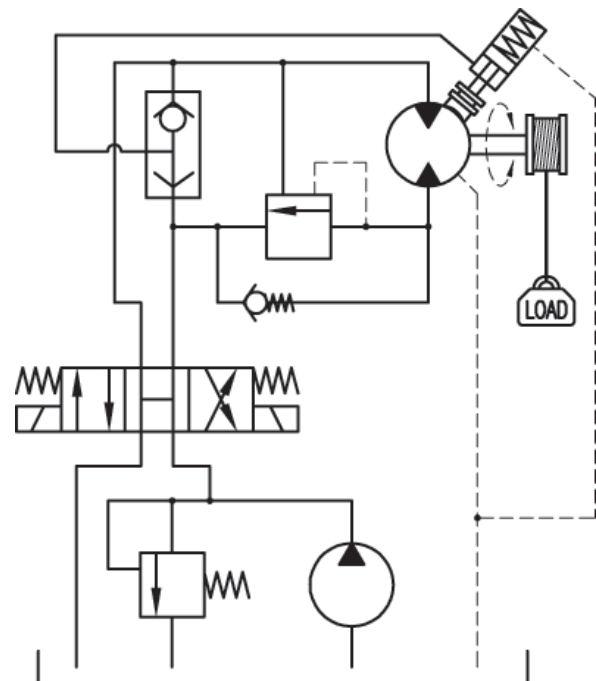


- lower braking torque units available on customer request for torque limiting devices;
- double range of drum roller bearing for heavy external loads available on request.

Markets/applications:

- industrial
- material handling
- marine
- oil & gas
- mobile
- winches
- slew drives

The picture below represents a typical hydraulic circuit where a brake is used to hold the load when no hydraulic pressure is used to feed the motor.



When the directional control valve is shifted, hydraulic pressure releases the mechanical brake and allows the load to be moved. When no feed pressure is supplied to the brake, the brake springs push the brake disks holding the load.

Brakes data

CHARACTERISTIC			BRAKE SIZE								
			B0190C	B0300D	B0450E	B0700F	B1100G	B1800H	B2800I	B4500L	B7000M
Static braking torque	Max.	Nm	1600	2150	3400	4800	7500	13200	20000	34300	51400
	Min.	Nm	1400	1800	3100	4100	6100	10900	16200	28500	40500
Dynamic braking torque	Max.	Nm	1100	1450	2300	3200	5000	8500	12900	22100	33200
	Min.	Nm	1000	1250	2100	2800	4100	7000	10400	18400	26200
Release pressure		bar	28	28	30	30	28	27	30	30	30
Max. continuous release pressure		bar	250								
Max. peak release pressure		bar	420								
Max. speed		rpm	1250	1000	850	700	580	500	370	260	260
Weight		Kg	27	29	60	63	78	176	225	460	652
Inertia of rotating parts		kg m ²	0,0046	0,0057	0,021	0,025	0,041	0,14	0,16	0,73	0,91
Working volume	New	cm ³	17	17	30	30	36	47	64	98	98
	Wear	cm ³	34	39	53	63	94	115	158	202	254

IMPORTANT NOTES:

The braking force values are based on coefficient friction $\mu = 0.14$.

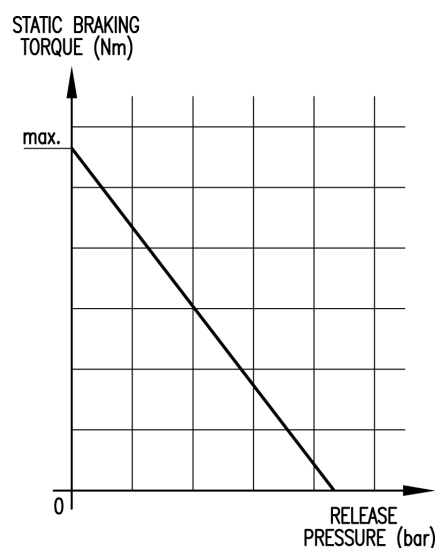
The brake can be used in dynamic conditions only in case of emergency (pump failure).

The release pressure represents the pressure value to completely release the brake.

For correct operations, the hydraulic release pressure to the brake must fall to zero. Any residual release back pressure applied to the brake, as shown in the graph below, will degrade braking torque and may result in hazardous conditions.

The brakes are suitable for wet operation (please contact Calzoni in case dry operation are required).

When intending to use low flammable liquids and bio-oils please consult Calzoni.



Brake selection

For ordering information you should select:

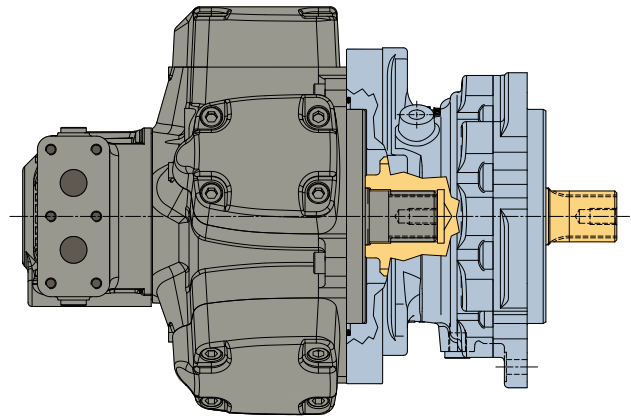
- brake size;
- brake input shaft;
- brake output shaft ;
- seal type.

The brake size has to be selected according to the required braking torque. The static braking torque has to be greater than the required torque. The brakes in this catalogue are suitable for direct coupling with Calzoni radial piston motors: in this case the brake size can be selected according to the motor size (see table below).

The brake output shaft can be selected according to the application the brake has to be assembled to.

The brake input shaft has to be selected according to the motor shaft option (see overall dimension drawings): brake input shaft code must correspond to output shaft code of the Calzoni radial piston motor for the assembly.

Correct combination with radial piston motor:
Motor MR1100G-D1 ... (motor shaft code D1)
Brake B1100-N1D1 ... (brake input shaft code D1)



In case you need a combination with motor, please contact Calzoni to get a part number for the complete assembly.

Example of model for complete assembly:
MR1100G-N1N1U1G1B...

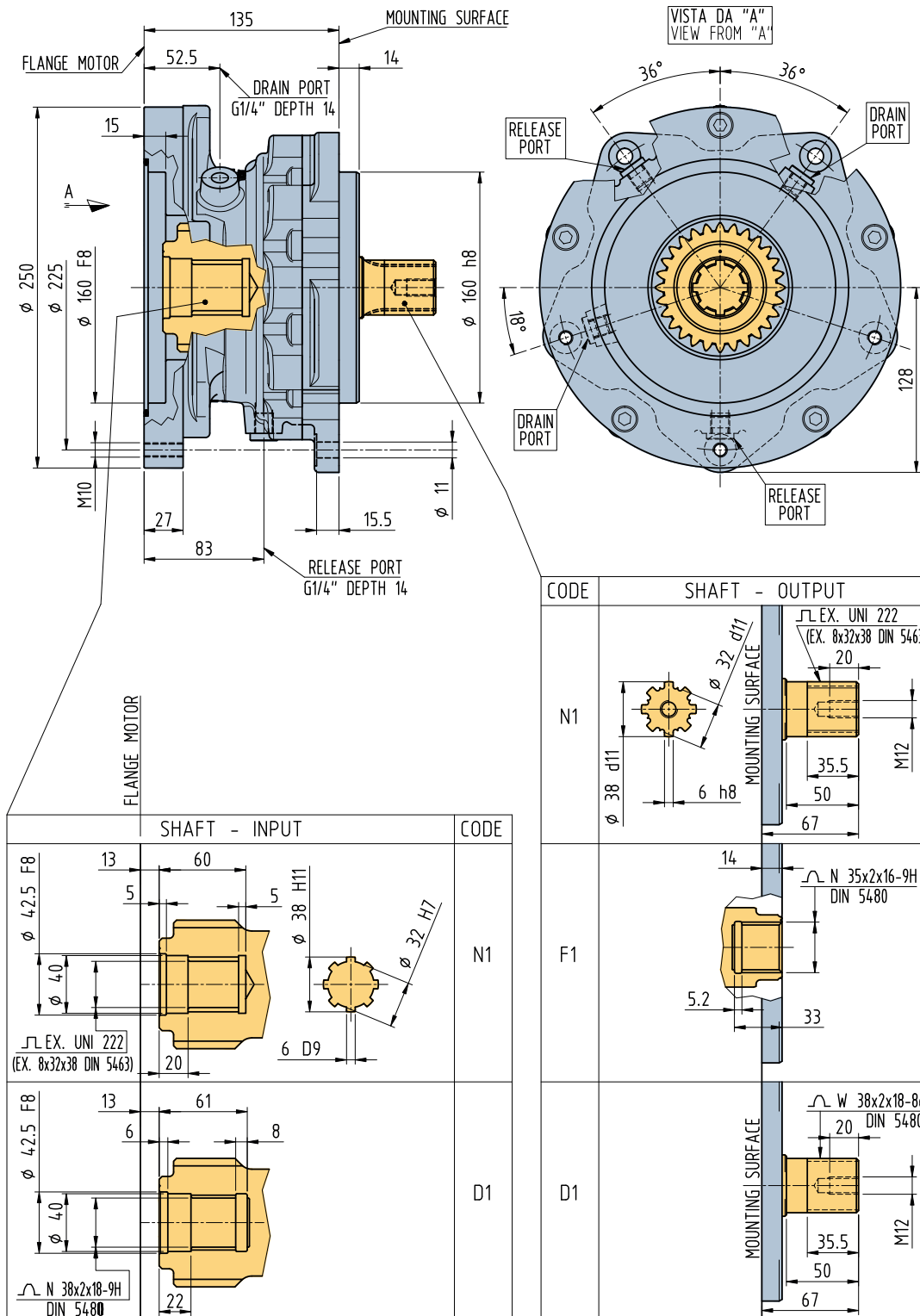
In this case the shaft letter refers to brake output.

Standard shaft connection between motor & brake is "D1" type.

BRAKE SIZE	Suitable for radial piston motor type
B0190C*	MR125C ...
	MR160C ...
	MR190C ...
B0300D	MR200D ...
	MR250D ...
	MR300D ...
	MRE330D ...
	MRA400D ...
	MRD300D ...
	MRDE330D ...
B0450E	MR350E ...
	MR400E ...
	MR450E ...
	MRE500E ...
	MRD450E ...
	MRDE500E ...
B0700F	MRV450E ...
	MR500 F ...
	MR600F ...
	MR700F ...
	MRE800F ...
	MRD700F ...
	MRDE800F ...
	MRV700F ...
MRVE800F ..	
B1100G	MR1100G ...
	MRE1400G ...
	MRD1100G ...
	MRDE1400G ...
	MRV1100G ...
	MRVE1400G ...

BRAKE SIZE	Suitable for radial piston motor type
B1800H	MR1600H ...
	MR1800H ...
	MRE2100H ...
	MRD1800H ...
	MRDE2100H ...
	MRV1800H ...
B2800I	MRVE2100H ...
	MR2400I ...
	MR2800I ...
	MRE3100I ...
	MRA3500I ...
	MRD2800I ...
	MRDE3100I ...
MRV2800I ...	
B4500L	MRVE3100I ...
	MR3600L ...
	MR4100L ...
	MR4500L ...
	MRE5400L ...
	MRD4500L ...
	MRDE5400L ...
	MRV4500L ...
MRVE5400L ...	
B7000M	MR6500M ...
	MR7000M ...
	MRE8200M ...
	MRA9000M ...
	MRD7000M ...
	MRDE8200M ...
	MRV7000M ...
	MRVE8200M ...

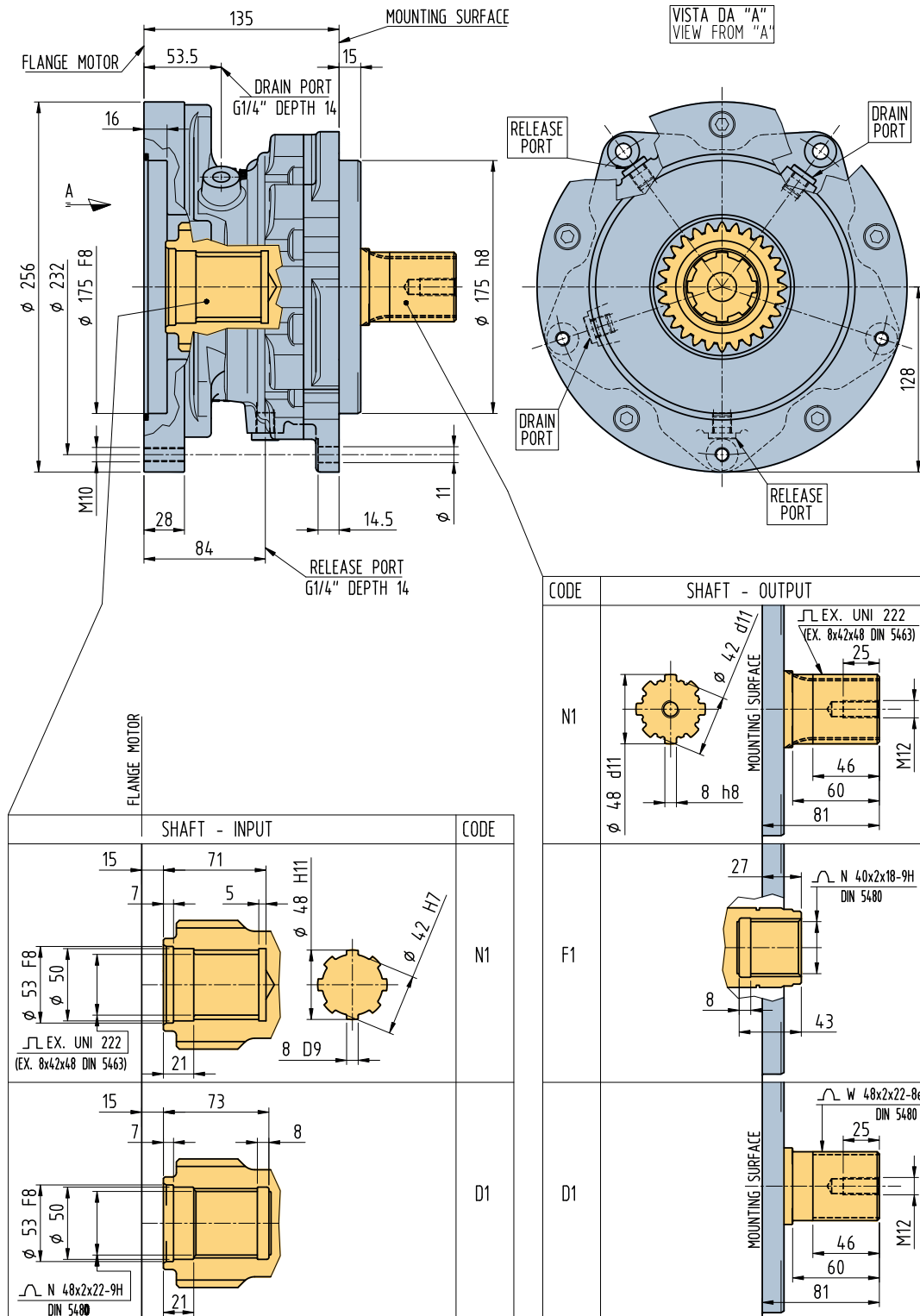
*Brake B0190C can be customized to fit also motor frame size "B"



Ordering information

B0190	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

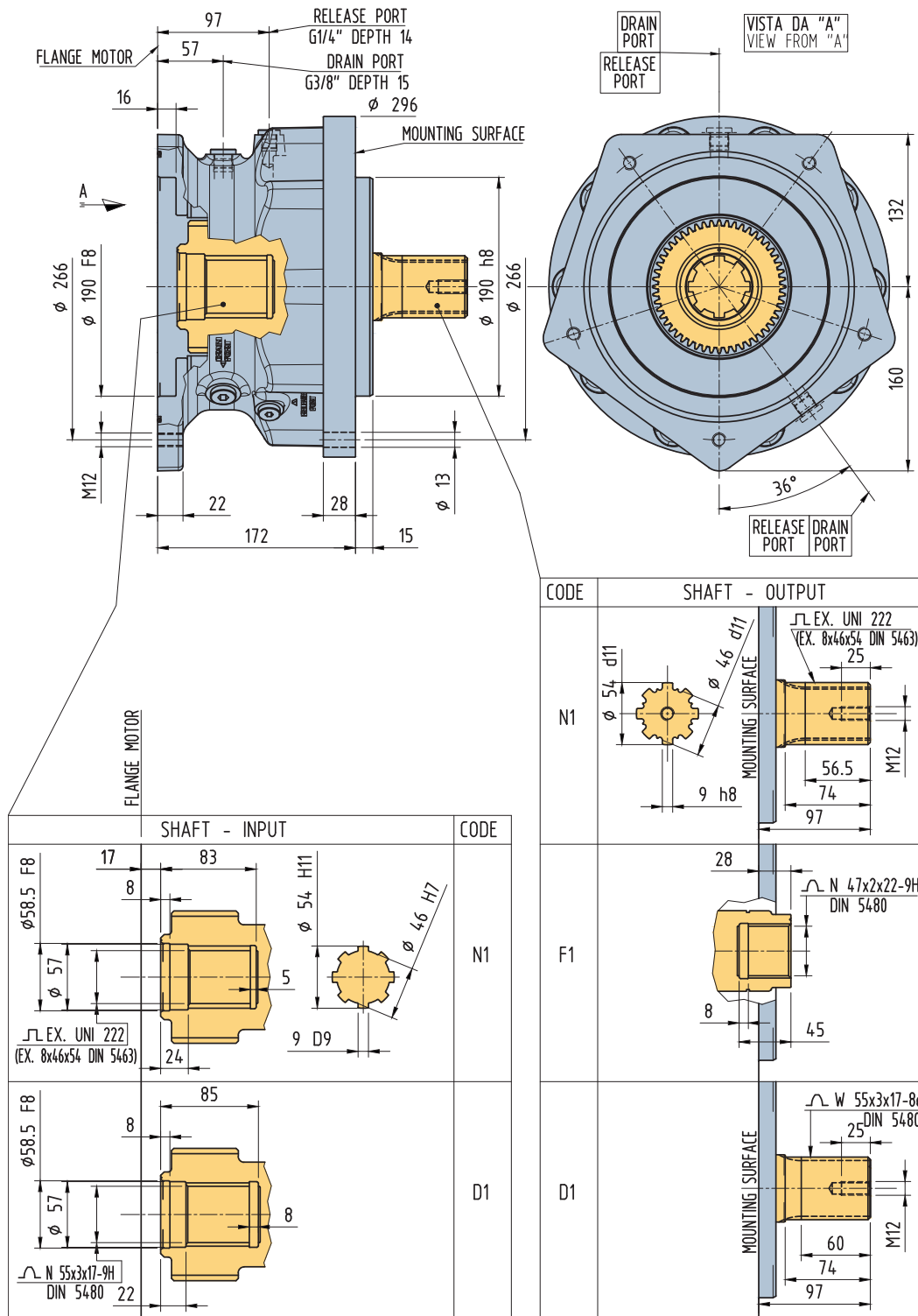
CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal



Ordering information

B0300	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

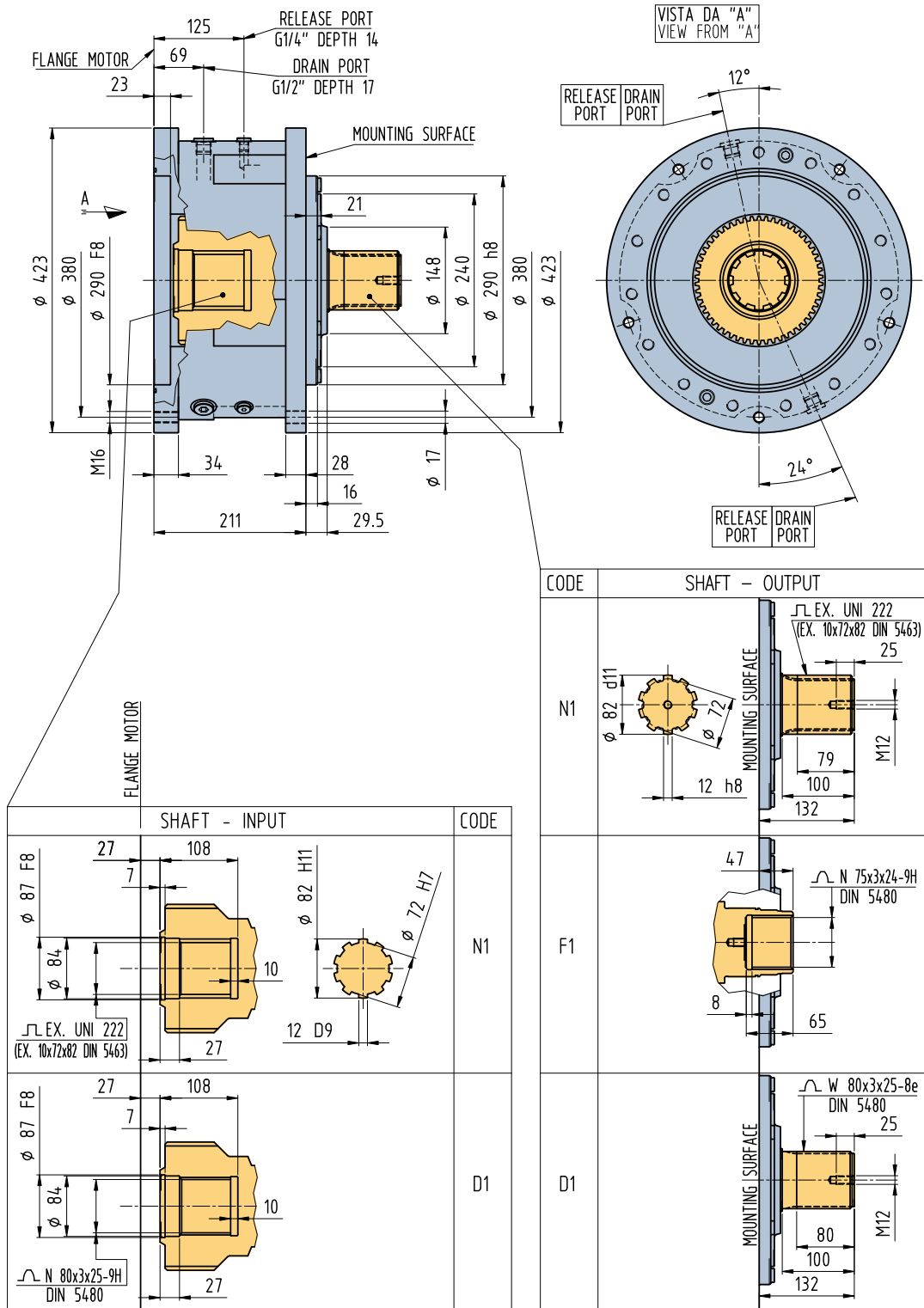
CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal



Ordering information

B0450	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

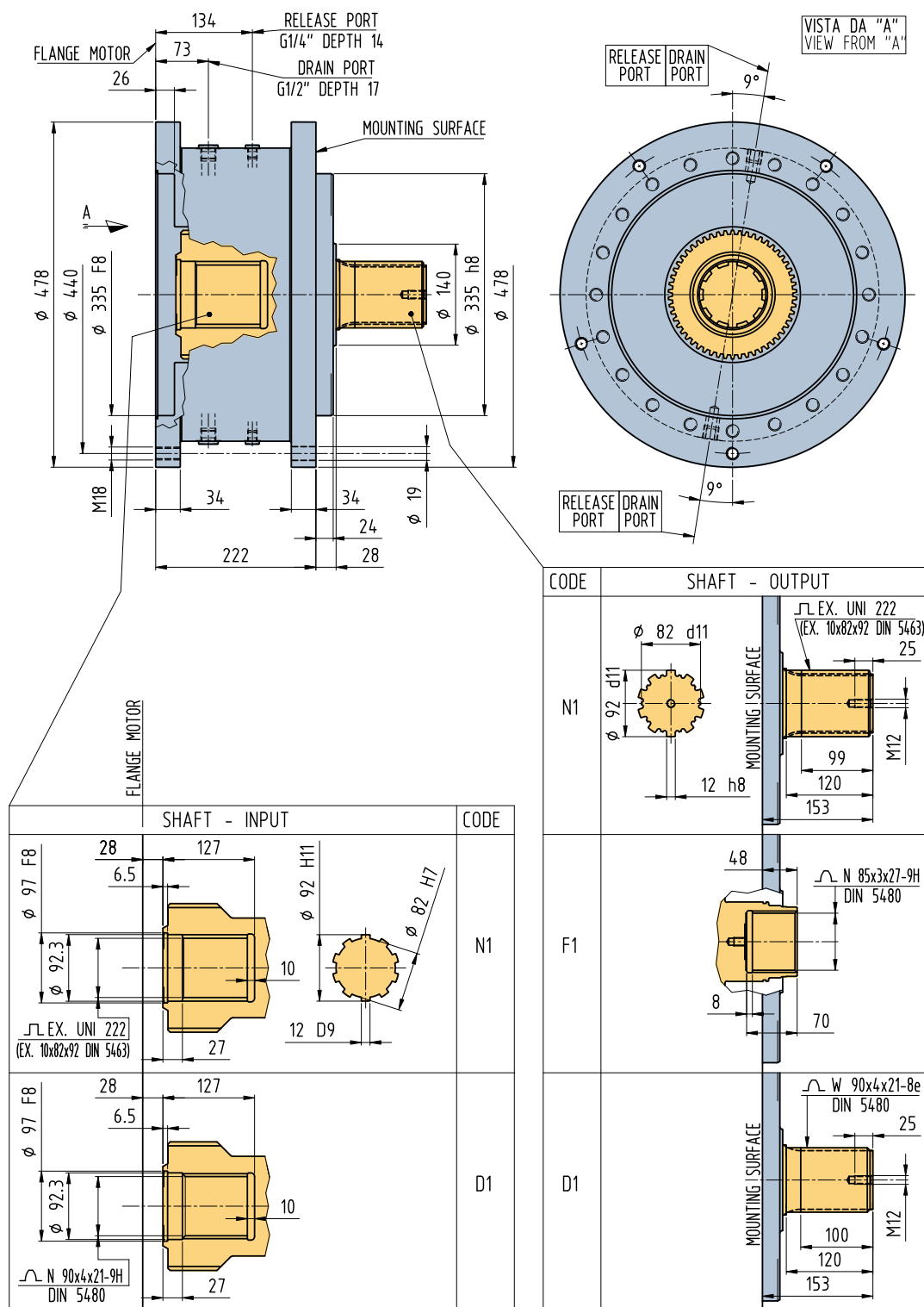
CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal



Ordering information

B1800	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

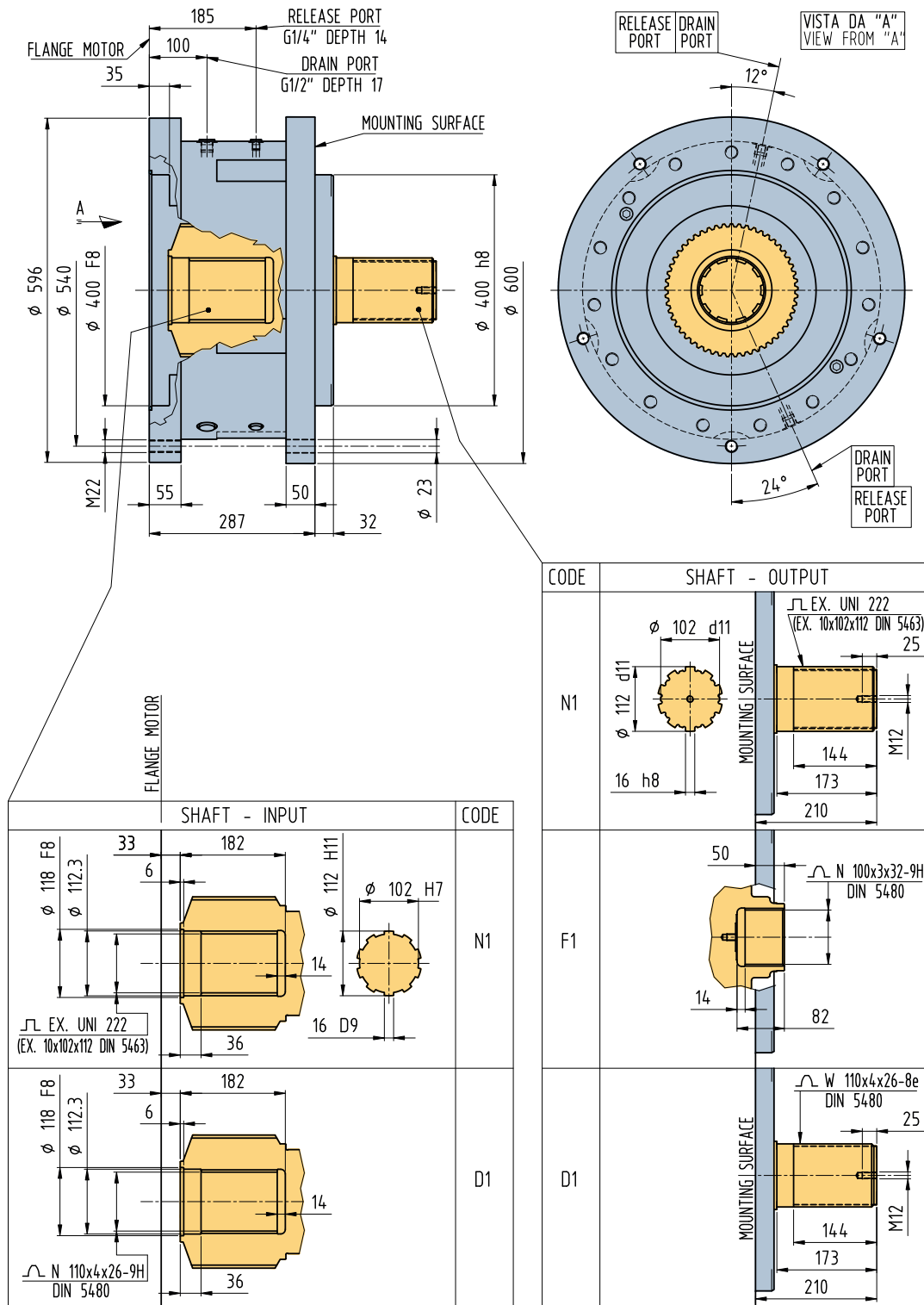
CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal



Ordering information

B2800	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal



Ordering information

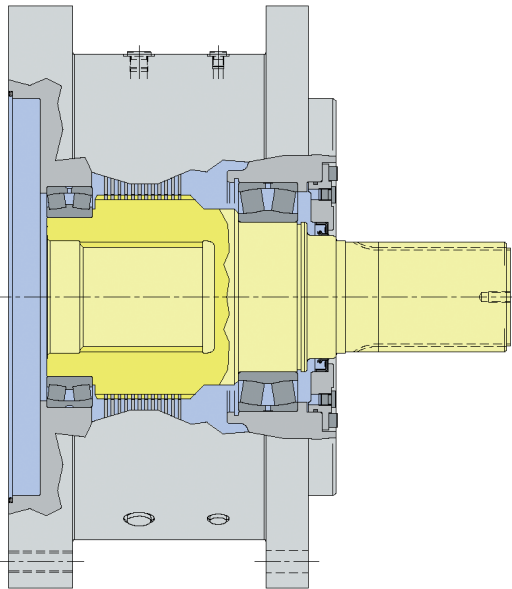
B4500	-			
BRAKE TYPE	-	SHAFT OUTPUT	SHAFT INPUT	SEAL TYPE

CODE	SEAL TYPE
N1	NBR: mineral oil
V1	FPM seal

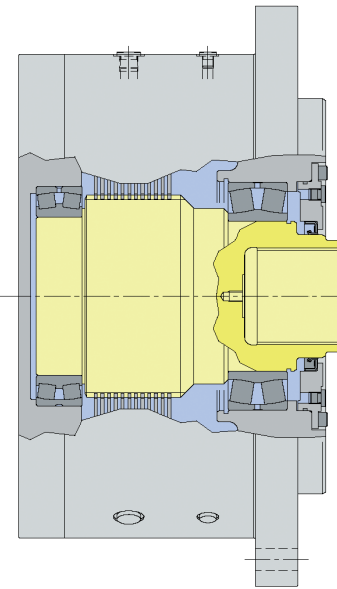
Customizations

Brakes can be customized on customer request. Please consult Calzoni for different mounting flanges and shaft dimensions, high radial and axial load capacity, and configuration not included in this catalogue.

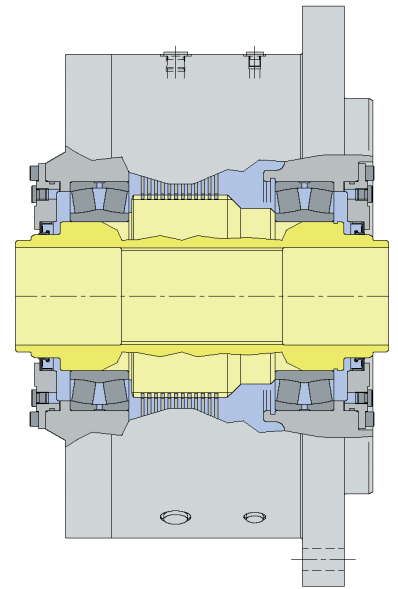
In the pictures below some example solutions for customer requests with customized brakes are shown.



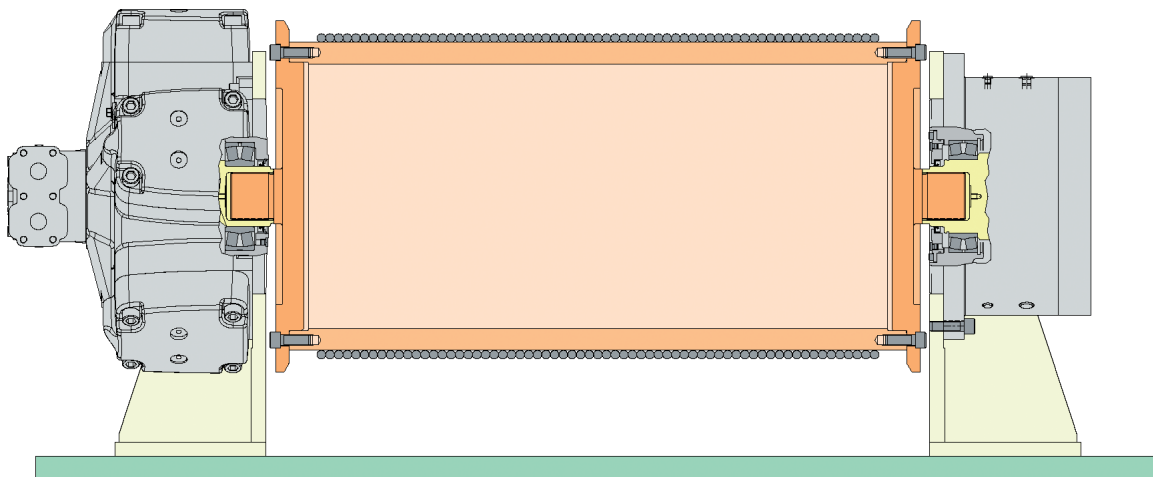
Brake with high capacity bearings for radial load support.



Brake with high capacity bearings for radial load support and only one spline.



Brake with high capacity bearings for radial load support and through shaft.



Direct mounted winch drum drive and brake (high capacity bearings for radial load support).



Calzoni Hydraulics Germany GmbH

Max-Eyth-Straße 65
72622 Nürtingen, Germany
Phone: +49 7022 405990

Calzoni Hydraulics Italy Srl

Via Casteldebole 10
40069 Zola Predosa (BO) Italy
Phone: +39 051 6501611

Email: info@calzoni-hydraulics.com

Catalogue CH-B-0504.0/EN 2024