

Hydraulic Collet Grips for Fatigue Testing of Round Specimens

Series HCG

The HCG Hydraulic Collet Grips are the best solution for fatigue testing of round smooth shank specimen. They are well suited for any kind of fatigue testing including LCF, TMF, force controlled constant amplitude axial fatigue test according to ASTM E446, ISO 1099 or EN 6072 and constant amplitude strain controlled axial fatigue tests according to ISO 12106, BS 7270 and others.



This hydraulically actuated grips hold a specimen during testing with a constant gripping force regardless of the applied axial test force. The short and stiff grip design minimize lateral movement and provides superb alignment and repeatability that minimize the introduced bending strain that can invalidate your test results.

These grips permit an easy sample loading into to collet inserts.

The grips are accurate machined with main parts polished.

The amount of bending strain in the specimen is beside of the gripping methods also affected by the specimen design. Better alignment can be achieved using smooth ended specimen as threaded specimens generally give poorer alignment with equally poorer reproducibility. Further as there are no threads or button ends to be machined the specimen preparation is less expensive.

These grips can be mounted on hydraulic or non-hydraulic static testing machines and dynamic rated systems.

Each grip has two hydraulic ports for the fluid, one for opening of the grip and one for closing / clamping.

The hydraulic supply can be either from an existing hydraulic source or via stand-alone or in the machine integrated hydraulic pump and valve assembly.

In combination with extension rods and high-temperature hydraulic fluid the grips can be mounted in environmental chambers.

The grips are nickel plated, wear and corrosion resistant. These Grips are produced up to 400 kN capacity. Built for years of trouble-free testing at its full rating!

Key Features

- Providing constant, lateral gripping force
- Superior alignment
- Stiff and short construction
- Easy specimen loading
- Quick changing of collets
- Inexpensive specimen production

Water Cooling / Warming Ports

When using the HCG Grips in applications where the specimen is heated as for example in combination with high temperature short furnace where the specimen is gripped outside of the furnace, or in combination with inductive heating system cooling water can be connected to the cooling/warming water ports of the grips.

These ports on the grips have water connecting fittings that allows to connect cooling water or alternative air to circulated through grip body.

We are also offering the water-cooling kit that includes all parts to connect the grips to a water source and regulate the water flow.

Interface to the testing machine with Washer-System

The grips provide an internal thread that allows a backlash free connection of the grips to your testing machine with spiral washer and connector stud. The washer/stud connection provides backlash-free connection between the grip and the testing machine.

Interface to the testing machine with Thread Bolt Circle

Additional most of the grip sizes have an additional thread bolt circle that allows to interface the load cell or an intermediate flange. As the thread bolt circle is compatible with our range of bending ring load cells this interface allows the direct, backlash-free connection of the grips in the testing machine or at piston rods of servohydraulic actuators.

Interface to the testing machine via Mounting Stud with PIN

If the grips are used in static testing machines or if regular installation and removal in the testing machine is unavoidable, we recommend using the mounting stud with PIN connection. This optionally available connection enables quick installation and removal and delivers good alignment.

Mounting of Accessories on the HCG Grips

The HCG grips have standardized threaded holes, some sizes with additional centring pin holes, in the ground end faces.

This enables the precisely attaching of compression platen, bending devices or any other fixture, tool or accessories directly to the grips. In many cases, this eliminates the need to remove the grips and makes changing from one task to another easy and productive.

Extension Rods for using the Grips in an Environmental Chamber

The HCG Grips can be mounted for room temperature testing or testing in an environmental chamber.

The usable temperature range of the grips inside the environmental chamber is determined by the used fluid (oil), hydraulic hoses or tubes and the type of seals used in the grips.

We are supplying the suitable extension rods with accessories to install the grips in an environmental chamber.

Furnace Extensions for Threaded Specimen

The HCG Grips offers the possibility to install an extension kit that extends into the furnace with pushrod for specimen preloading suitable for backlash free installation of threaded specimens. Typical application includes Low Cycle Fatigue (LCF).

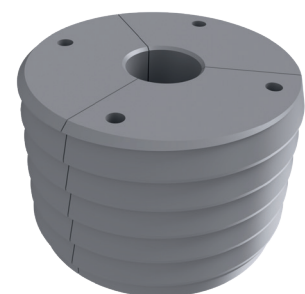
Collet Inserts

Collet inserts are precise machines three-segment inserts to accommodate the type of specimen. Each set of collet inserts is designed for one specific specimen type and dimension.

Three types of collets are available for these grips:

- Collets for round smooth ended specimens
- Collets for threaded specimens
- Collets for flat specimens

Each set of collet inserts are designed for one specific specimen dimensions.



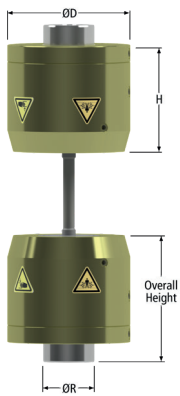
Technical Data

Model	Force (kN)	Temperature Range	Max. Round Specimen Diameter \varnothing	Weight each Grip (kg)
HCG-50	50	-40°C to 65°C *	25	32
HCG-100	100	-40°C to 65°C *	42	54
HCG-250	250	-40°C to 65°C *	42	79
HCG-400	400	-40°C to 65°C *	42	110

* Standard temperature range

Option

All grips supplied with sealings for Standard Temperature Range of the grips from -40°C to +180°C whereas the use above 75°C requires a stand-along grip supply with suitable fluid.



Dimensions

Model	Overall Height	Body Height (H)	Outside Diameter (ØD) mm	Piston-Rod Diameter (ØR) mm	Internal Thread (A)	Internal Thread Depth (mm)	Bolt Circle (mm)	Bolt Circle Size (B)
HCG-50	148	120	175	55	M16x1.5	40	Ø30	8xM6
HCG-100	223	188	215	90	M27x2	65	Ø45	8xM10
HCG-250	246	213	260	125	M33x2	50	Ø71	8xM16
HCG-400	270	410	290	125	M36x2	60	Ø71	8xM16

Axial-Torsion HCG Grips

The HCG grips are also available as Axial-Torsional grips with related connecting detail to the testing machine. The torque rating varies between the grip size and is also related to the specimen clamping diameter.

Please contact us for further information.

