We have a horse in every race

Hydraulic cylinders
INTRODUCTION

CHARVÁT Group is an established European manufacturer of hydraulic cylinders with piston diameter from 25mm to 450 mm with stroke up to 8 meters, and production 6,000 cylinders per month.

The majority of the Company’s products are designed around client’s specific requirements using Charvat design expertise. This leads to continuous in-house technical development and meeting of all preconditions for maximum satisfaction of our customers.

Production embraces complete industrial manufacturing process: hardening, galvanizing and chromium plating. CNC turning machines Doosan, Gildemaister, Mori-Seiki, CNC tooling centres Tajmac ZPS, Harford, grinding machine on internal, and external surfaces, special workshops (honing, lapping, ultrasound cleaning etc.). CNC test rig, paint shop and necessary control shop.

This Plant List of technological equipment enables us to produce a wide range of hydraulic cylinders. At the same time we are able to guarantee maximum quality adopted from aircraft undercarriages, which is a part of our production portfolio. Due to regular annual investments in technology, we can secure technical difficulty of our products and therefore fulfil our company moto: „We have a horse in every race“.

Hydraulic cylinders are manufactured in two plants: CHARVÁT Group Zbraslavice and CHARVÁT AXL Semily. Each plant has specified production.
LINEAR HYDROMOTORS

Hydraulic cylinders standard TYPE: CHB, CHL, CHS

- Single and Double Acting cylinders for standard usage in agricultural, municipal, forestry and other technology.
- Hydraulic cylinders with continuous piston (steering cylinders - loaders, material handling trucks).
- Types: CH Basic – up to 20 MPa, CH Light up to 25 MPa, CH Strong up to 35 MPa).

Operating pressure: up to 35 MPa
Temperature range: -30°C / +100°C
Piston speed: up to 0,5 m/s
Tube diameter: 25mm – 180 mm
Piston rod diameter: 12mm – 100 mm
Stroke: max. 500 mm
Hydraulic cylinders XXL  TYPE: CHX

- Hydraulic cylinders with extra diameters for robust applications, such as pressing machines, construction and mobile cranes, hydro plants, container carriages, scissor carriers.

Operating pressure: up to 35 MPa
Temperature range: -30°C / +100°C
Piston speed: up to 0.5 m/s
Tube diameter: 200mm – 450 mm
Piston rod diameter: 110mm – 360 mm
Stroke: max. 3500 mm
Telescopic hydraulic cylinders  TYPE: CHT

- Hydraulic cylinders to achieve maximal stroke: superstructure construction, automobiles, municipal engineering, mobile platforms.
- Operating pressure: up to 20 MPa
- Temperature range: -30°C / +100°C
- Piston speed: up to 0.5 m/s
- Type design: single / double acting
- Number of stages: max 5
- Stroke: max. 8000 mm
Bolting hydraulic cylinders Type: CHU

- Hydraulic cylinders to achieve maximum reliability and performance: injection presses, construction machinery, mobile hydraulics and solution applications.
- Follows on standardized series according to ISO 6022.

Operating pressure: up to 35 MPa
Temperature range: -30°C / +100°C
Piston speed: up to 0.4 m/s
Tube diameter: 200 mm max
Piston rod diameter: 140 mm max
Stroke: max. 5000 mm
Special hydraulic cylinders

- Beyond the standard types.
- On the basis of specific customer’s requirements.
- Tandem, mechanical-hydraulics, pneumatically-hydraulics, swinging hydro motors and other special designs.
- Extreme sizes (piston diameter, piston rods, strokes – hydraulic presses, cranes, energy machines).
- Extreme temperatures (metallurgical industry, snow guns).
- Extreme environment (mining, chemical and food industry, desert, offshore applications).
- Extreme cyclic stress (injection presses, shock absorbers, drilling rigs).
- Extreme powers and pressures (energetic machines, presses).
HYDRAULIC CYLINDERS

OPTIONAL PARAMETERS
– End-position cushioning – constant / controlled.
– Valves - External / Integrated (hydraulic locks, stalling valves, pressure relief, safety and brake valves).
– Measurement of position (in the end positions, during the whole stroke).
– Mineral / biodegradable oil.

CHOICE OF MATERIAL
– Standard piston rods (20MnV6)
– Piston rods with improved mechanical properties (42CrMo4V, CK45 – HRC 55)
– Anti-corrosion piston rods (double Cr, AISI 431, 316, 329)
– Special piston rods (NIKROM 350/500, LUNAC – ceramic coat, NITRIDATED AND HOLLOW PISTON RODS)
– Tolerance f7 / f8, surface roughness Ra max 0,2ym
– Precision tubes (DIN2391-C - H8, DIN2393-C - H9 / St 52-3)
– Tube machining technology: calibrated, rolling, honed
– Inner surface roughness Ra max 0,4 ym
– Sealing elements Hallite, Trelleborg

ISO CERTIFICATES
CHARVÁT Group meets quality requirements according to ISO during production of hydraulic cylinders. Besides standard ISO 9001:2009 and 14001:2005 CHARVÁT Group holds specific certifications in the context of making aerospace components (EASA) and vehicles (ISO 3834-2 and 15085-2, CL1).
The Company’s production plant contains over 60 CNC machines and 30 conventional machines, technology of galvanic surface protection, and heat treatment of metals.

MAX. PARAMETERS OF MANUFACTURING EQUIPMENT

- **CUTTING**
  - max. diameter: 400 mm
  - max. weight: 3,200 kg

- **TURNING**
  - max. diameter: 750 mm
  - max. length: 5000 mm
  - max. weight: 3,000 kg

- **MILLING**
  - max. diameter: 2200 x 780 x 810 mm

- **GRINDING**
  - max. diameter: 400 mm internal
  - max. length: internal 1500 mm
  - external 470 mm

- **HONING**
  - max. diameter: 200 mm
  - max. length: 2000 mm

- **CHROMING**
  - diameter of bath: 1800 x 300 x 700 mm
  - max. weight: 400 kg

- **ANNEALING/ QUENCHING**
  - diameter of bath: Ø 600 x 1200 mm
  - max. weight: 800 kg
  - max. temperature: 980 °C

- **BLACKENING**
  - diameter of bath: 1200 x 400 x 800 mm

- **ZINC, CALC, IRON PHOSPHATING:**
  - diameter of bath: 1200 x 350 x 800 mm

- **ALCALIC ZINC PLATING:**
  - diameter of bath: 1200 x 300 x 700 mm

- **ALCALIC CADMIUM:**
  - diameter of bath: 1200 x 300 x 700 mm

- **ANODIZING:**
  - diameter of bath: 1200 x 200 x 500 mm
HYDRAULIC CYLINDERS

PRODUCTION
Tooling centre

CNC turning machines
Inspection

Heat and surface treatment

Weld
Test rigs

Ultrasound cleaning

Paint shop
HYDRAULIC CYLINDERS

- Single acting cylinder
- Double acting cylinder with Trunnion
- Double acting cylinder with lock Valves
- Telescopic cylinder
- Double acting cylinder with pivot flange
- Cylinder with Double ended rod
HYDRAULIC CYLINDERS

Special screwed cylinder with flange

Special cylinder with transmission

Large cylinder Type CHX

Special penumo-hydraulic cylinder

Special mechanical-hydraulic cylinder
CHARVÁT Group s.r.o.
285 21 Zbraslavice 394, CZ
Tel.: +420 327 591 112, 116, 117, 780
Fax: +420 327 591 429
E-mail: charvat@charvat-chs.cz
www.charvat-chs.cz

CHARVÁT Slovakia s.r.o.
913 21 Trenčianska Turná 1034, SK
Tel.: +421 32 658 5184-5, 5844, 5113
Fax: +421 32 658 5843
E-mail: charvat@charvat-slovakia.sk
www.charvat-slovakia.sk

CHARVÁT d.o.o.
Josipa Jelačiča 87a, 43 500 Daruvar, HR
Tel.: +385 43 332 182, 331 397, Fax: +385 43 331 695
E-mail: charvat@charvat.hr
www.charvat.hr

O.O.O. ХАРВАТ
ул. Дзерджинского 1, 08200 г. Ирпень
Киевская обл., UA
Tel./ Факс: +380 44 377 51 22
Моб. +380 67 447 1798
E-mail: office@charvat.com.ua
www.charvat.com.ua

CHARVÁT AXL, a.s.
3. května 800, 513 01 Semily
Tel.: +420 481 654 111, Fax: +420 481 623 336
E-mail: axl@charvat-axl.cz
www.charvat-axl.cz

CHARVÁT HYKOM s.r.o.
Plzeňská 2726, 269 01 Rakovník
Tel.: +420 313 515 923, Fax: +420 313 515 187
E-mail: hykom@charvat-hykom.cz
www.charvat-hykom.cz

CHARVÁT CTS a.s.
Okřínek 53, 290 01 Poděbrady
Tel.: +420 325 608 111, Fax: +420 325 653 097
E-mail: info@charvat-cts.cz
www.charvat-cts.cz

CHARVÁT Hydraulik GmbH
Carl – Benz – Str. 4, 69298 Schriesheim, DE
Tel.: +49 (0)6203 – 9569861, Fax: +49(0)6203- 9582881
Mobil: +49(0)171 5847784
E-mail: info@charvat-hydraulik.com

E-MOTION SYSTEMS LTD.
Martyn Evans
66 GARDENERS GREEN, SHIPTON BELLINGER,
SP9 7TA TIDWORTH HANTS, GB
Tel./Fax: + 44 (0)1980 761409
Mobil: +44 (0)7919 957560
E-mail: evans-martyn1@sky.com

CHARVAT Hidraulika d.o.o.
Novosadski put 73a, 21 203 Novi Sad, RS
Tel.: +381 21 820 808, Fax.: +381 21 820 808
E-mail: charvat@charvat.rs
www.charvat.rs

LOCAL WORKSHOPS:

CHARVÁT Group s.r.o.
Formanská 139, 149 00 Praha 4 – Újezd, CZ
Tel./Fax: +420 272 690 085
E-mail: praha@charvat-chs.cz
www.charvat-chs.cz

CHARVÁT Group s.r.o.
Pohraniční 504/27, 703 00 Ostrava-Vítkovice, CZ
Tel./Fax: +420 595 953 253
E-mail: ostrava@charvat-chs.cz
www.charvat-chs.cz

CHARVÁT Group s.r.o.
Božkovské náměstí 17/21, 326 00 Plzeň-Božkov, CZ
Tel./Fax: +420 377 420 046
E-mail: plzen@charvat-chs.cz
www.charvat-chs.cz

CHARVÁT Group s.r.o.
Suchomelská 533, 370 04 České Budějovice, CZ
Tel.: +420 739 476 099
E-mail: ceskebudejovice@charvat-chs.cz
www.charvat-chs.cz

CHARVÁT Group s.r.o.
Plzeňská 2726, 269 01 Rakovník, CZ
Tel.: +420 727 927 585
E-mail: rakovnik@charvat-chs.cz
www.charvat-chs.cz