



We have a horse in every race

CHARVÁT®

Hydraulic cylinders

INTRODUCTION

CHARVAT 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.

CHARVÁT Group, s. r. o. ZBRASLAVICE (cylinders with standard character)



CHARVÁT AXL, a. s. SEMILY (special and large cylinders)



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

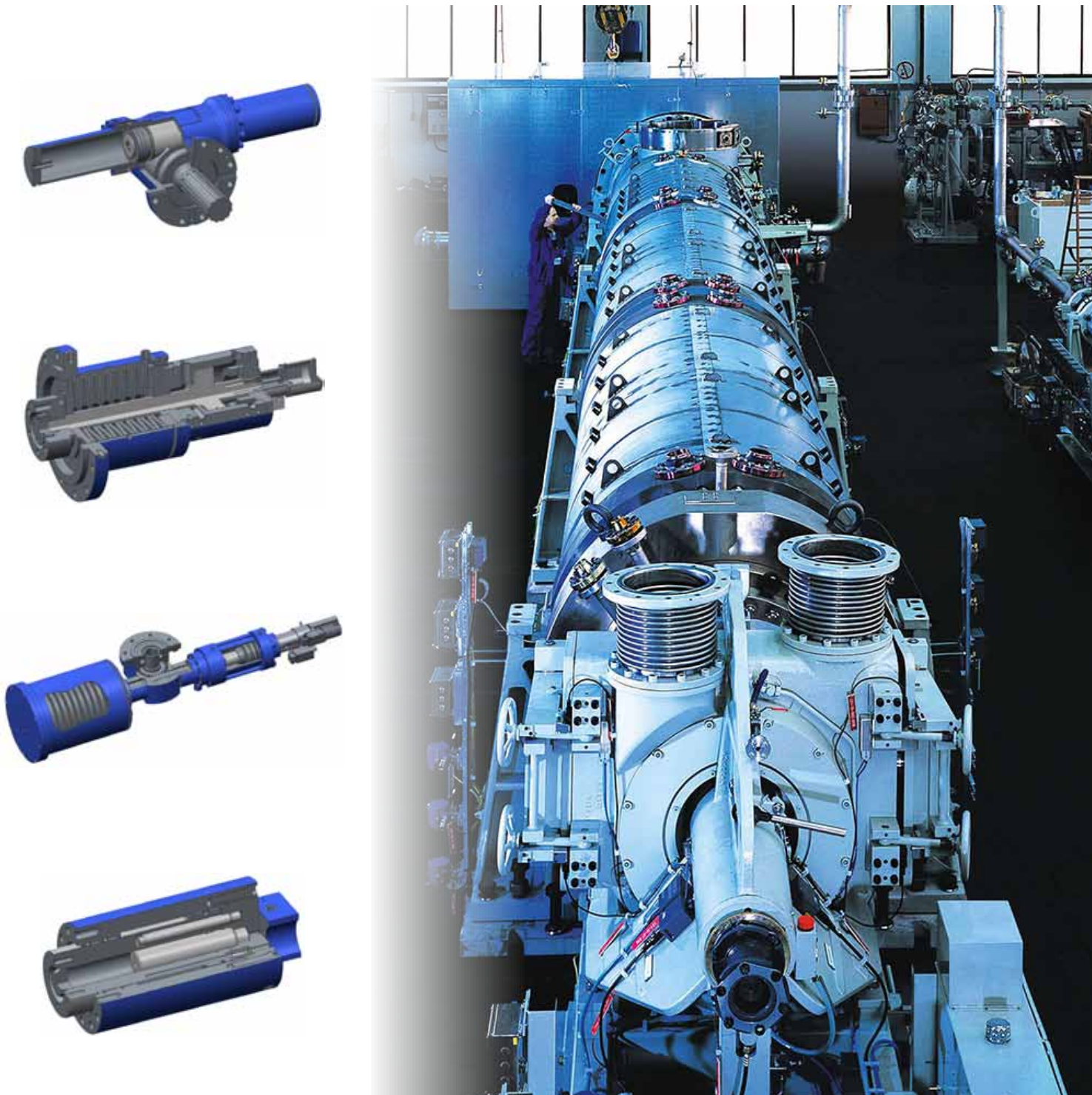
Piston rod diameter: 140 mm max

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).



OPTIONAL PARAMETERS

- Mounting: eye-eye (hinged, sliding bearings, fork), circular flange, lug, bolt – thread, ball hitch.
- 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 0,2µm
- Precision tubes (DIN2391-C - H8, DIN2393-C - H9 / St 52-3)
- Tube machining technology: calibrated, rolling, honed
- Inner surface roughness Ra max 0,4 µm
- 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).



PRODUCTION OF LINEAR HYDROMOTORS



The Company's production plant contains over 60 CNC machines and 30 conventional machines, technology of galvanic surface technology 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
– MILLING	table size:	2200 x 780 x 810 mm	max weight:	3,000 kg
– GRINDING	max. diameter:	400 mm internal external 470 mm	max. length:	internal 1500 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 batch:	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		

PRODUCTION



Tooling centre



CNC turning machines



Inspection



Heat and surface treatment



Weld



Test rigs



Ultrasound cleaning



Paint shop

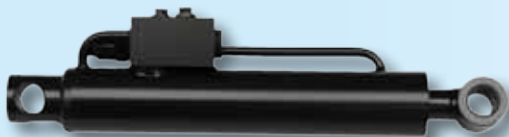




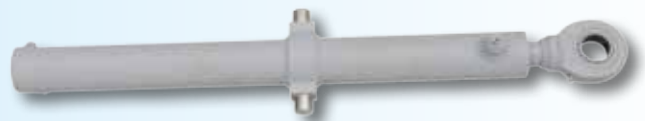
Single acting cylinder



Double acting cylinder



Double acting cylinder with lock Valves



Double acting cylinder with pivot flange



Double acting cylinder with Trunnion



Cylinder with Double ended rod



Telescopic cylinder



Special screwed cylinder with bold



Large cylinder Type CHX



Special screwed cylinder with flange



Special penumo-hydraulic cylinder



Special cylinder with transmission



Special mechanical-hydraulic cylinder

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