PARSHWA PLASTICS CASE STUDY

# Metalwork. Overmoulding. Final machining.

This bell crank lever combines a prepared metal insert, glass-filled nylon overmoulding, and centre-referenced final machining. We manage the sequence so the finished part holds its alignment in continuous high-speed use.

01 | PREPARE THE METAL CORE

## Ream, grind, and nitride before moulding.

The metal insert is prepared before the polymer stage begins. Reaming establishes the centre bore, grinding controls the working surfaces, and nitriding hardens the core for continuous service.

02 | OVERMOULD THE WORKING BODY

## Glass-filled nylon is moulded in-house.

We overmould the prepared core using Nylon-6 with 30% glass fibre and MoS2. The material combination gives the lever the strength and low-friction performance needed for continuous movement.

03 | MACHINE FROM ONE REFERENCE

## The centre hole controls the final alignment.

After moulding, the centre hole becomes the reference for machining four exterior pads to 0.05 mm parallel alignment. Once the customer fits the ceramic guide, the finished lever runs in a textile texturising machine at 1,200 RPM.

THE RISK: SPLIT RESPONSIBILITY

## Several processes still have to produce one aligned part.

Metal grinding, nitriding, insert moulding, and secondary machining all affect the final geometry. When those steps are split across suppliers, alignment risk and follow-up increase.

THE SOLUTION: ONE MANAGED SEQUENCE

## One supplier controls the job from core to finish.

We coordinate the metalwork, overmould the body in-house, and manage the final machining. The finished part ships with the required inspection records and shipment documents.

LATER PRODUCTION VARIATION

# Reduce oil churning without changing the mould.

After the original tooling was complete, the customer needed the bell crank lever to move through oil with less churning and pressure resistance. We added through-holes by secondary machining to help oil circulate around the moving part, while keeping the existing mould unchanged.

04 | POST-TOOLING OIL-FLOW OPENINGS

## Through-holes reduce oil churning.

The lever rotates at 1,200 RPM inside an oil-filled housing. The machined openings give the oil a path through the lever, reducing pressure resistance and helping it circulate around the moving part.

FINISHED VARIATION | SIDE 01

FINISHED VARIATION | SIDE 02

THE CONSTRAINT: TOOLING ALREADY COMPLETE

## The production mould was already made.

The oil-flow change was introduced after moulding. Secondary machining added the openings while the original production tool stayed in service.

OUR CONTRIBUTION: SECONDARY MACHINING

## We added the new feature after moulding.

Parshwa machined the added through-hole pattern after moulding. The openings reduce oil churning and pressure resistance and help circulation around the lever, without requiring a new mould.